NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com

October 24, 2005 ■ Volume 22, Number 42

AFTER A SECURITY BREACH

Every network is vulnerable to some type of attack. The important thing is how you respond.

Page 42

ISABELLE CARDINAL

Clear Choice Test

NETWORKWORLD CLEAR CHOICE

Storage options for SMBs are exploding. In a test of four NAS devices we came away most impressed with Infrant's ReadyNAS 600.

Page 47

Cisco talking IP-radio nets

BY PHIL HOCHMUTH

Cisco this week is expected to announce new technology and a business unit focused on integrating two-way radio, cellular, VoIP and other communications methods into an IP backbone.

The IP Interoperability and Collaboration System (IPICS) consists of existing Cisco products and new server software that Cisco says will let public safety organizations and companies IP-enable two-way radio voice traffic and integrate disparate radio infrastructures with other public safety or private organizations.

▶ Juniper claims gains in enterprise networks. Page 8.

While initially focused on public safety and government users — patching together systems of separate police, fire and governmental organizations, for example — Cisco says the IPICS platform will appeal to a broad range of public and private enterprise customers because the system also is capable of integrating disparate data and video

See Cisco, page 16

Regulators to bankers: Tighten up online security

BY ELLEN MESSMER

Federal regulators last week issued new Internet banking standards that will require adoption of stronger authentication methods by the end of next year.

The Federal Financial Institutions Examination Council (FFIEC) said the industry needs to adopt more than just single-factor authentication for online banking in order "to reduce fraud, to inhibit identity theft, and to promote the legal enforceability of their electronic agreements and transactions." Government auditors are expected to begin

See Banking, page 14

WiderNet

Deciphering the world of crypto

IETF opens its arms to lesser-known algorithms such as SEED and GOST.

BY ELLEN MESSMER

It's the computational magic for scrambling data to keep it secret, and in the U.S., the best-known cryptographic algorithms go by names such as Triple-DES and AES.

But in other countries, such as South Korea, Russia and Japan, it is SEED, GOST and Camellia that say security, say nothing of specialized cryptos such as CAVE and A5/1.

It's a wide world of encryption, and the IETF, which shepherds Internet protocols, is embracing it.

COLIN JOHNSON

The IETF standards for Web, VPN and e-mail security have been driven with crypto algorithms approved by the U.S. government, primarily via the National Institute of Standards and Technology.

Triple-DES is defined as a must for any product implementation based on IETF standards. The newer 128-bit Advanced Encryption Standard (AES) — a cipher invented by Belgian cryptographers that was selected as the U.S. standard in late 2001 after a five-year

See Crypto, page 94

Find tools and guidance to defend your network at microsoft.com/security/IT

- **Free Tools and Updates:** Streamline patch management with automated tools like Windows Server™ Update Services. And verify that your systems are configured for maximized security with Microsoft® Baseline Security Analyzer.
- **Microsoft Risk Assessment Tool:** Complete this free, online self-assessment to evaluate your organization's security practices and identify areas for improvement.
- **Antivirus for Exchange:** Download a free trial of Antigen® for Exchange and arm your e-mail server with powerful multi-engine protection from viruses, worms, and inappropriate content.
- **Learning Paths for Security:** Take advantage of in-depth online training tools and security expert webcasts organized around your specific needs. Then test your security solutions in virtual labs, all available on TechNet.

Microsoft

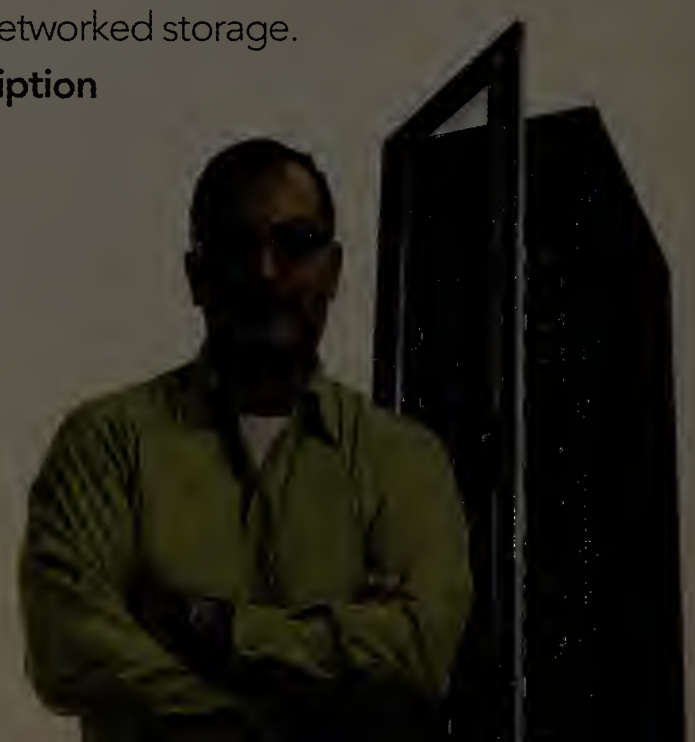
Buy nothing now. Learn how to buy even less later.

No commitments. No obligations. A half hour is all we need to demonstrate how Pillar Axiom™ drives down networked storage costs. By combining SAN and NAS into one system, it dramatically reduces administration and support. With top-tier performance and scalability on a single software license, it eliminates unexpected fees. And because our storage system can often be installed for less than some companies' storage maintenance budgets, it can really save on the bottom line.

You've got nothing to lose and everything to gain by hearing our honest approach to networked storage. Call **1-877-252-3706** to schedule a briefing or visit **www.pillardata.com/less**

Learn the truth about networked storage.
Get your FREE subscription to AXIOM Journal

pillar™
DATA SYSTEMS



NETWORKWORLD

10.24.05

News

AFTER A SECURITY BREACH

Every network is vulnerable to some type of attack. The important thing is how you respond. Find out what action to take should this unfortunate occurrence happen to your organization. **Page 42.**

ISABELLE CARDINAL

Clear Choice Test:

Storage options aplenty in the SMB-based NAS market. **Page 47.**

Face-Off:

Cisco's Rob Redford, left, and Aventail's Evan Kaplan debate which is better: a smart or dumb network? **Page 38.**

The New Data Center

Piecing together the next-generation IT architecture

Our ongoing series continues with a guide to outsourcing, new-data-center style. Inside you'll find:

- Options from leading outsourcers.
- Tips from IT execs.
- Five critical questions to ask prospective partners.

PLUS: Best picks of new data center products, and more.

Stories begin after **page 58.**

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 14 for more contact information. **REPRINTS:** (717) 399-1900

■ **SUBSCRIPTIONS/CHANGE OF ADDRESS: Phone:** (508) 490-6444; **Fax:** (508) 490-6400; **E-mail:** nwcirc@nww.com; **URL:** www.subscribenw.com

COOLTOOLS

The FireStore FS-4 captures digital video direct from a video camera in formats such as Windows AVI, RawDV and QuickTime. Page 36.

Online www.networkworld.com

Available only on NetworkWorld.com

Face-Off: Are smart networks worth the investment?
Rob Redford, vice president of product and technology marketing at Cisco, and Aventail CEO Evan Kaplan debate the issue. Read their comments, then jump in with your comments.
DocFinder: 9343

Forum: Your network world 10 years ago
NetworkWorld.com turns 10 this week, and to celebrate columnist Chuck Yoke looks back at what his network world was like in 1995: "Sorry, Buddy, you may want to go back 10 years, but I think I'll stay right here." Read his reminiscences, then head into our forum to add your own. What was your network like in '95?
DocFinder: 9344

Forum: The future of Vonage
Columnist Mark Gibbs wonders whether the services has much of a future in its present form. Readers react. **DocFinder: 9345**

Podcast: HP's Mark Potts on SOA
We talk with Mark Potts, CTO of HP's Management Software Business, about HP's view on the state of service-oriented architecture implementations in customer sites.
DocFinder: 9346

Online help and advice

Compendium
Concerned about technological intrusions on your privacy? Executive Editor Adam Gaffin points you to directions on building a personal anti-RFID device.
DocFinder: 9347

Adobe (eventually) gets it right
IT Borderlands' Ken Fasimpaur on Adobe Reader 7.0.5 update and why it's a step forward: "When something is inherently difficult, like software patching, it's worth going to whatever lengths are necessary to make it as simple as possible." **DocFinder: 9348**

Telework Beat
Senior Editor Ann Bednarz says technologies are tailor-made for virtual call center settings.
DocFinder: 9238

Home LAN Adventures
Freelance editor Sandra Gittlen re-examines her adventures in "anti-spam Hell" when her well-meaning efforts to rid her system of spam caused major headaches. Read and learn from her mistakes.
DocFinder: 9349

Seminars and events

Small Business Tech
Better phone services for small businesses
Columnist James Gaskin says big-company phone features now are affordable and available for small businesses.
DocFinder: 9350

BREAKING NEWS

Go online for breaking news every day. **DocFinder: 1001**

Free e-mail newsletters

Sign up for any of more than 40 newsletters on key network topics.
DocFinder: 1002

What is DocFinder?

We've made it easy to access articles and resources online. Simply enter the four-digit DocFinder number in the search box on the home page, and you'll jump directly to the requested information.

NEWSbits

Cisco to sink $1.1 billion into India

■ Cisco last week said it will invest $1.1 billion in India over the next several years, with new projects in R&D, venture capital, equipment financing and customer support targeted for the world's second-largest country. Cisco CEO John Chambers said the move is to address the fast-growing economy and IT needs of India. "India has rapidly risen to become a major force in the global economy," he said in a statement. "As Indian companies strive to be globally competitive, they have realized the importance of investing in information technology and networking." According to the World Bank, India's IT sector accounted for approximately 4% of its gross domestic product between 2003 and 2004, with almost a million employed in the sector. More than 100 multinational corporations have set up R&D centers in India.

Amazon.com expands there, too

■ Amazon.com will open a second development center in India, to be located in the southern city of Chennai. The center will focus on developing new features for Amazon.com's sites worldwide that will help customers find anything they want to buy online, the company said. The company set up its first development center in India last year, in Bangalore. That center is focused on search technology and Web services, a company spokesman said. The development center in Chennai is the company's fourth software development center outside the U.S. Amazon.com also has centers in Edinburgh, Scotland, and Cape Town, South Africa. Its primary development center in the U.S. is in Seattle.

Oracle database targeted

■ Database administrators have added incentive to install Oracle's latest security patches released last week. Malicious software is circulating that can crash an unpatched database server, and one security expert predicted that more malware targeting the 89 recently patched vulnerabilities is on the way. On Thursday, code was published on the Full Disclosure security mailing list that exploits a buffer overflow vulnerability in certain versions of Oracle's databases. This code could be used by attackers to bring down a database, using a technique called an SQL injection attack, says Alexander Kornbrust, a business director at Red-Database-Security. Earlier in the week Oracle released a bundle of critical security patches that fixed 89 bugs in its database and application servers, as well as some PeopleSoft and J.D. Edwards applications. More information can be found at www.networkworld.com, DocFinder: 9356.

{quote of the week}
{quote of the week}
{quote of the week}

"I have never, honestly, thrown a chair in my life."

Steve Balmer, Microsoft president and CEO, responding to an audience question about how many chairs he might throw should the oft-rumored Microsoft/AOL deal go south.

Microsoft releases Exchange 2003 SP

■ Microsoft last week released the second service pack for Exchange 2003, which is half of the software the company is developing to improve the delivery of e-mail to Windows-based mobile devices. The mobile features in Exchange 2003 Service Pack 2 are a direct hit at BlackBerry devices from Research in Motion, which offers the same instant updates to corporate e-mail, calendars and contacts. Microsoft currently uses Short Message Service to notify a mobile device of new e-mail. The device then retrieves the e-mail from the server. With the new Direct Push Technology in SP2, e-mail will be automatically pushed to the device using an HTTP connection maintained by the device. SP2 includes new spam-protection features, including support for Sender ID and updates to the Exchange Instant Message Filter; remote management, including Remote Wipe to clear data from lost devices; and policy enforcement controls, such as requiring a password to unlock a device.

EMC snaps up Captiva

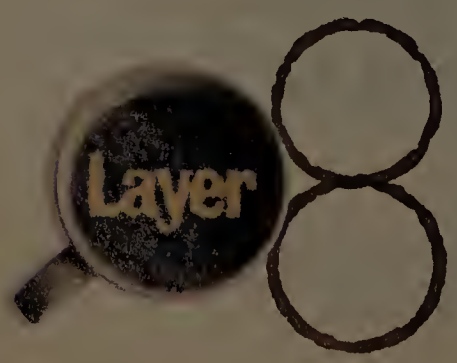
■ EMC last week agreed to acquire Captiva Software, a maker of software for digitally capturing documents. The price was about $275 million. EMC has a partnership with Captiva in which it integrates Captiva's InputAccell software with its own Documentum enterprise management platform. The company plans to further integrate Captiva software into its own. EMC will keep selling and developing Captiva's stand-alone products. The companies' combined technologies will let corporations eliminate paper or automatically digitally capture information and integrate it with electronic business processing, EMC says. (Read more about EMC, with its move into the continuous data-protection market, page 13.)

TheGoodTheBadTheUgly

< Go west, IT workers. IT professionals seeking work have the best chance of finding jobs on the West Coast, according to research from an employment services company aired last week. Nationally, 16% of CIOs plan to hire staff in the fourth quarter, the highest net increase since the third quarter of 2002, according to the "Robert Half Technology IT Hiring Index and Skills Report." Networking professionals, Web and applications developers, database administrators and software engineers are in the greatest demand.

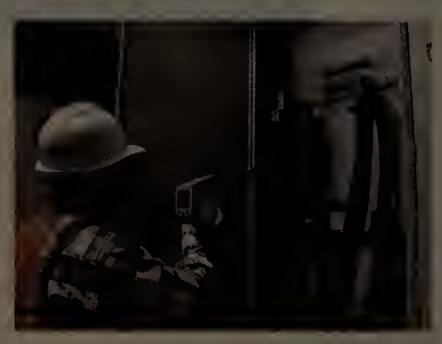
Snort falls short. Sourcefire, which oversees the open-source intrusion-detection system Snort and makes commercial products based on it, last week disclosed a major vulnerability in the technology along with corrective measures to mitigate the risk. Details about the vulnerability and mitigation instructions from Sourcefire are available at: www.networkworld.com, DocFinder: 9357.

Laptop meltdown HP has recalled around 135,000 lithium-ion rechargeable battery packs after several melted or charred the plastic cases of laptops, a company spokesman said. The battery is used with the HP Pavilion, Compaq Presario, HP Compaq and Compaq Evo laptops. The battery is made by a third-party vendor that HP would not identify.



"As seen by the familiar faces of these limo drivers, the dot-com bust has gotten even worse."

Bill Clark of Heber City, Utah, takes top honors this week in a very tight race. Head over to Layer 8 to read the runners-up and come back every Monday for the start of a new contest.
www.networkworld.com/weblogs/layor8



High-def videoconferencing hits the market

BY JASON MESERVE

PHOENIX — Polycom last week took advantage of the Polycom User Group conference to announce products to support high-definition videoconferencing.

High-definition video offers 10 times the resolution (number of pixels) as standard videoconferencing, meaning better picture clarity.

Polycom said it is shipping upgraded software for its media gateway controller units, which are used to connect multiple endpoints in a single call. The software allows for as many as 90 simultaneous high-definition calls running at 1M bit/sec, the minimum amount of bandwidth needed to make a call at the higher video resolution.

The company also said it will make available a $6,000 upgrade kit for its high-end VSX 8000 group conferencing unit in the second quarter of 2006. The kit will feature a new camera and accessories to give high-definition capabilities to existing units.

Not so fast

Barriers to high-definition videoconferencing:

- **Upgrade to high definition capable display –** Most are running standard television.
- **Upgrade to high definition camera –** Most appliances have standard-definition cameras built-in.
- **Need MD mulitpoint control unit –** For connecting multiple endpoints in an all high-definition call. Polycom is the only company currently offering high-definition support in an MCU.
- **More bandwidth –** Need 1M to 3M bit/sec for a single call.
- **Two-way street –** The other end of the call needs high definition for the full experience.

SOURCE: WAINHOUSE RESEARCH

But are customers ready for high definition?

"HD is a great concept, but for a company of our size, how can we afford to replace 370 video units, some with dual monitors, with HD screens? It's not cost effective," said Stephen Callaghan, senior video architect at Bristol-Myers Squibb (BMS) in New York. "Plus, bandwidth may be cheap, but at our size and the fact you need 1M bit/sec, that's a lot of bandwidth. Our biggest call has 100 users."

Callaghan said videoconferencing traffic on the BMS network takes a back seat to drug and company financial data. BMS runs conferences at an average of 384K bit/sec, which is three times the current industry standard of 128K bit/sec, he added.

Polycom downplays the advancement as well. "HD is nice to have, but we don't think it will change the number of participants" in the market, said John Antanaitis, senior director of product marketing for the video communications division, who adds that pipe size also is a factor. "There's a limit on bandwidth. Tandberg is claiming 3M bit/sec on a call and we're going to start at 1M bit/sec, but most organizations won't have that."

Antanaitis said early adopters will probably be in the Internet2 community, educational institutions and especially healthcare, where full-fidelity images are important for applications such as looking at a skin lesion during a telemedicine session.

Even for some of the potential early adopters, bandwidth could still be a challenge. "1M bit/sec is all of our T-1 connection," said Michael Roscoe, network technician for the Eastern Montana Telemedicine Network in Billings, a consortium of about 30 hospitals. "And bandwidth is still expensive in Montana."

In a May 2005 survey, Wainhouse Research asked 416 users what their plans were for high definition and 47% said it would have little or no impact. Only 12% said they would move.

Why the Polycom announcement then? Polycom must continue to innovate and improve quality, analysts say. And other vendors are getting involved in high definition. Start-up LifeSize Communications is scheduled to ship endpoints with high-definition capabilities this year, and Codian has a high-definition multipoint control unit in the works. There is now no high-definition endpoint available from major manufacturers. ■

Juniper gains corp. network ground

Company sees big gains in key enterprise technology areas.

BY JIM DUFFY

Juniper last week offered up fresh evidence that its enterprise networks strategy is working, as it posted third-quarter financial results that included security-product sales growth nearly double that of competitors over the past year.

The company made a determined effort to enter the enterprise market about 18 months ago, with the $4 billion acquisition of leading firewall and VPN vendor NetScreen. Juniper's move perplexed the industry at the time, because CEO Scott Kriens pledged in 2002 not to compete with the company's core service provider customers by also selling routers and other products into the enterprise (www.networkworld.com, DocFinder: 9525).

But Juniper maintains that it always sold into the enterprise via indirect channels even before the NetScreen acquisition.

Enterprise now accounts for one-third of Juniper's yearly revenue of more than $2 billion, Kriens said last week during a conference call to discuss third-quarter results, which beat analyst forecasts on both revenue and earnings — and enterprise product sales, which were up 17% sequentially. "For a company looking to get into the enterprise, three-quarters of a billion dollars in business is not bad," Kriens quipped.

Leading into the third quarter, Juniper's enterprise business appeared stalled. Sequential sales of the NetScreen products had fallen below analyst expectations for three of the past four quarters.

In the second quarter, for example, Juniper experienced soft security-product sales with sequential quarterly growth of only 1.4%, according to UBS Warburg. UBS points out, however, that the security hardware market slowed in the fourth quarter of 2004 and the first quarter of 2005.

Nonetheless, "Juniper has only achieved our estimate for security product sales in one of the four quarters since the company has acquired NetScreen," wrote UBS Analyst Nikos Theodosopoulos in a mid-September bulletin.

UBS forecast 5% sequential growth in security for Juniper in the third quarter, but the company had an 8% gain. Even more impressive was the 37% year-over-year growth that Juniper says almost doubled the growth of its "pure play" peer group security competitors — Check Point Software, SonicWall and WatchGuard Technologies — over the same period.

Cisco, which Juniper does not consider to be in its pure play security peer group, because it includes sales of routers with integrated security, had 25% year-over-year growth in security sales in its fourth quarter that ended July 30.

Juniper scoffed at the sober predictions analysts had for the third quarter.

"It was interesting — actually more comical — watching the research come out," says Jim Dolce, Juniper's executive vice president of worldwide field operations.

The enterprise market is very seasonal, he says. Year-over-year comparisons provide a more accurate indication of performance, he adds.

Dolce says Juniper is pleased with its results in the enterprise.

Not all is well

Still, there look to be some laggards in Juniper's enterprise portfolio, which includes M- and J-series routers, and the application acceleration and WAN optimization products acquired midyear from Redline Networks and Peribit Networks, respectively.

The J-series routers, which have been shipping for about a year, logged $2 million to $3 million in sales in the third quarter, Kriens said. This is up slightly from the $1 million to $2 million in sales from the first two quarters, but accounts for less than 1% market share in

See Juniper, page 16

Net access control on tap from Juniper

BY TIM GREENE

Juniper Networks this week plans to unveil a policy management appliance, a key piece of a secure network access scheme designed to rival those of Cisco and Microsoft.

The major difference between Juniper's Infranet strategy and Cisco's Network Admission Control (NAC) system is that Cisco uses switches and routers to deny access to unqualified machines while Juniper relies on its firewalls (though says it will use other vendors' switches over time).

Microsoft's Network Access Protection (NAP) scheme also relies on other vendors' gear to enforce policies and, like Cisco's plan, is supported by an extensive partner program. Other vendors, such as Aventail, Elemental and Sygate, offer products that can be used to control network access without relying on network hardware for enforcement.

Juniper's Infranet architecture calls for placing its appliances, dubbed Infranet Controllers, in a network where computers logging on can reach them and users can authenticate (see graphic). The devices send an Infranet Agent — a Java applet or Active X agent — down to the computer to scan it for compliance with network security policies. This includes looking for updated virus signatures, software patches and the like.

Juniper touts its architecture as less intrusive than Cisco's because it overlays security on LANs without requiring costly switch upgrades. NAC requires that Cisco switches be brought up to an acceptable IOS software version. To use switches as enforcement points, Juniper's Infranet requires the cooperation of other vendors, which may prove challenging in the case of Cisco. Juniper has a partner program of its own for this purpose and is working with the Trusted Computing Group to develop specifications that switch vendors can adopt to enable them to become enforcement points.

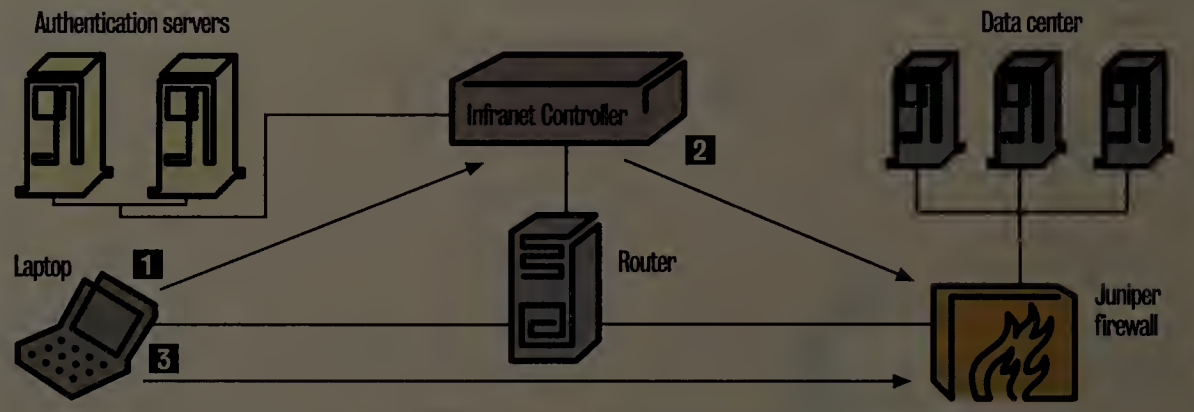
Because Cisco owns more than 70% of the switch market, Juniper's Infranet will have to work its way into Cisco shops. Juniper sells no switches of its own, so many potential Infranet customers will have to weigh overlaying Juniper's firewalls and Infranet Controllers vs. upgrading their switches to determine what makes the best security and financial sense, says Eric Maiwald, senior analyst with Burton Group. Some all-Cisco shops "say yes to NAC but say it may take a while because of all the upgrades they have to go through," he says, and such customers may view Infranet as an interim alternative.

Compucredit, an Atlanta financial firm, tested beta models of Infranet Controller as a way to simplify administration of end user access rights, as end users move from location to location on the network, says Ben Griffin, senior network and systems engineer for the company. Currently, end user rights are tied to subnets and virtual LANs (VLAN), which requires network administrators to intervene when an end user switches desks. He found that end user security staff rather than network infrastructure staff could handle changes on the Infranet Controller without having to tinker with the structure of VLANs or change firewall settings. "That's a 30% to 40% time savings," Griffin says.

Juniper's Infranet Controller comes in two models, the IC 4000 and IC 6000. The 4000 supports 100 to 3,000 simultaneous computers and costs $25,000 to $160,000, while the 6000 supports 250 to 25,000 endpoints and costs $60,000 to $390,000. ■

Security system

Juniper is introducing Infranet Controller, a policy appliance for protecting network assets from unauthorized use.



1. A user's PC connects to Infranet Controller and logs on. The Controller checks the user's credentials against authentication databases and receives policy information about the user and his machine.
2. Infranet Controller assesses whether the machine accessing the network meets the security-configuration policy and downloads the user's access policy to a Juniper firewall, which acts as the enforcement point for the policy.
3. When the end user attempts to reach resources protected by a firewall, it either grants or denies access based on the policy.

THE BRAINS TO BACK IT UP.

PATHLIGHT VX
Disk-Based Backup

*Looking at disk-based backup but not sure how to make it happen? Get the smarter disk backup solution—Pathlight® VX from ADIC, the leading provider of tape libraries for open-systems backup.**

Smarter disk-based backup. Pathlight VX is the scalable backup and restore solution that increases the capacity and reduces the cost of disk backup by integrating disk and tape in a single, unified system. Disk gives you twice the backup performance of conventional libraries—and even faster restore. Tape delivers scalability, value, secure retention, and flexible disaster recovery. You get the best of both technologies in a single solution that slips right into your existing backup system.

Clear investment protection. With Pathlight VX, you can boost your backup and restore whether you need a system for 3.8 TB or 3,000 TB—and pay a lot less for it. You can even use your own tape library as part of the system—tape storage can be supplied by one of ADIC's intelligent Scalar® libraries, or by your legacy StorageTek L-Series™ system.

Room to grow, smarts to save. Pathlight VX delivers all the performance of disk and the fault tolerance of RAID, but it also scales to meet enterprise capacity demands and grows easily with your data—and it can cut your costs in half or more compared to conventional products.

*Market share from Gartner Dataquest, Tape Automation Systems Market Shares, 2003, F. Yale, April 2004.

Visit ***www.adic.com/pvx*** to get your free GlassHouse white paper
by W. Curtis Preston, *Evaluating Disk-Based Backup Solutions*.

adic

Intelligent Storage™

Gartner event focuses on security

BY MICHAEL COONEY AND NEAL WEINBERG

LAKE BUENA VISTA, Fla. — With many keeping one eye on Hurricane Wilma churning off the coast, 6,000 IT executives last week heard Gartner analysts offer their vision on everything from security trends to wireless network directions.

The Gartner Symposium and IT Expo 2005 also brought out 190 vendors and included keynote presentations from Microsoft CEO Steve Ballmer, HP CEO Mark Hurd and Dell CEO Michael Dell.

Ballmer said he believes his company has ironed out all of the security problems in its forthcoming Windows Vista operating system so that users can consider adopting it the first day it is released — for the most part.

"Most people will trust it from day one on their home computer, and then they will have to decide about their corporate [PC]. I encourage you to get it early, but I must be honest among friends," Ballmer said.

In a wide-ranging chat with Gartner analysts, Ballmer touched on some of the prominent topics surrounding Microsoft this year, including its all-out effort to improve security, the competitive threat from Linux and Google, and delays in Vista.

Formerly known by its Longhorn code name, Vista was originally supposed to be available by now as an ambitious upgrade to Windows XP. It was supposed to include a new file system and a new presentation surface, among other features, but Microsoft was unable to make sure all the new components would interoperate in time for its current launch date, the second half of next year, Ballmer said. Instead, Microsoft decided to roll out those components over time after the launch. This also gives the company's developers time to run code through tools designed to probe for security weaknesses, Ballmer said. "We are in the middle of the best pipeline of products we've ever had."

The security concern

But Microsoft's security issues weren't the only safety challenges that attracted attention.

Once books close on 2005, spending on security is expected to have increased 16% annually over the past two years, or four times the rate of overall IT spending. That security splurge is unsustainable for most customers, said Gartner Vice President John Pescatore.

To get more secure and spend less, companies should focus on process, not products, said Neil MacDonald, vice president at Gartner. "Businesses should increase the efficiency of the security program either by reducing the percentage of revenue that goes toward security spending or increasing the amount of protection from established security spending levels. And also increase the effectiveness of the security program, reducing the number of successful incidents or providing security controls that don't interfere with business missions."

Pescatore added that network-based intrusion-prevention systems (IPS) are mature and should be deployed. On the other hand, he did not recommend the widespread use of host-based IPS, because it's more difficult to control what's happening at the desktop level.

He added that the new breed of all-in-one security devices could be a good fit for small or midsize businesses or for remote offices or retail branches of a large company, but said all-in-one appliances don't have the performance to handle security for a large corporate headquarters.

Companies should have anti-spyware software on every desktop, but customers should not pay extra for it, MacDonald said. They should demand that their existing desktop anti-virus vendor simply add anti-spyware as an additional feature.

The changing face of IT

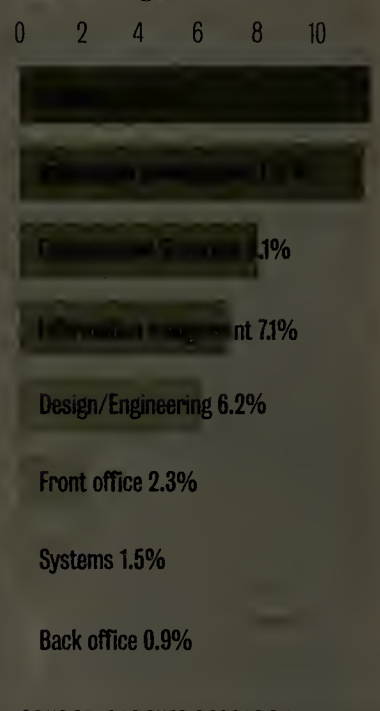
In the area of compliance, analyst John Bace presented research showing that compliance-related activities eat up a huge chunk of IT budgets. In a Gartner survey of 900 CIOs, respondents said they're planning to allocate

See Gartner, page 12

Security spending

Gartner says IT security spending is growing faster than overall IT spending . . .

2004 vs. 2005 budgets
Percent change



SOURCE: GARTNER RESEARCH

. . . So in order to save money Gartner recommends:

- Make internal and external application providers increase quality and reduce security flaws.
- Don't let routine matters be performed by expensive security staff. Focus on new threats.
- Build a Security Immune System: Add another layer of "skin" and make your network service providers give you clean pipes.
- Use multiple styles of protection on the network and hosts.
- Network-based IPS; host-based IPS on all servers and laptops, including behavioral simulation and behavioral monitoring.
- Start lab testing emerging desktop and server virtualization techniques. These offer new protection capabilities and open new security vulnerabilities. You need to understand both.
- Don't buy point products for each new threat; newer converged platforms are capable of "learning" new threats.

School nixes malware with open source

BY JOHN COX

ORLANDO — A team of IT staffers at the University of Indianapolis last week showed off a bundle of open source tools and scripts it uses to trap and isolate PCs infected by viruses or spyware.

Dubbed Shelob, after the sinister giant spider in J.R.R. Tolkien's "Lord of the Rings," the software identifies suspect traffic patterns, identifies the computers involved and then shunts them to a closed virtual LAN. Users get an appropriate Web screen, explaining what's happened and how to fix their PC or whom to call for help.

Shelob's inner workings were shown off last week in Orlando, Fla., at Educause, the annual user conference for IT professionals in higher education.

The school says that since being rapidly thrown together during the Blaster worm outbreak of 2003, Shelob has helped to keep it free of network or service outages related to virus infections. One limitation is it works only with clients that are plugged directly into the LAN, not wireless devices.

Shelob's creators are Shawn Austin, Matt Wilson and Steve Corbin, all at the university. Currently, Shelob is not publicly available, but that could change as early as this week, says Wilson, who is the school's network manager.

To detect traffic anomalies, Austin says, the team wrote plug-ins for three open source programs — Snort, an intrusion-detection program; Amavisd, an interface between message transfer agents and various content checking programs; and NMAP, a network scanner. A tool called Bleeding Snort keeps Snort's virus signatures updated daily.

Using the output from these programs, Shelob populates a MySQL database table with a list of media access control addresses and other identifiers.

Shelob integrates with the school's own version of the open source NetReg application, which is used to register an unknown DHCP client before it's granted full network access. When Shelob identifies an infected PC, NetReg assigns it a new IP address. Then, OpenVMPS (an open source version of Cisco's VLAN Membership Policy Server) reassigns the port to which the PC is connected to a virtual LAN that contains only other infected computers.

Shelob then redirects the PC's DNS lookup requests to a Web server, which then delivers a page that tells the end user about the infection and tells how to clean it. The same Web page can be used to distribute McAfee's VirusScan, virus definition files and Windows updates or patches.

The PC is quarantined on the VLAN until the virus is killed or the spyware activity on the PC stops.

False positives occur, but they're fairly rare (about one in every 50 or 60 quarantined PCs), Austin says. Creating a Snort rule for a new virus can take time. But once Shelob has been "fed" with the new rule, its web quickly picks up the infected PCs.

Shelob's creators are considering using the school's Windows Software Update Server to report which PCs have checked in, or not, for the latest updates. Any PC that has not checked in for, say, 30 days, would be forced to Shelob's web, where the end user would have to update Windows before being allowed to escape. Shelob also could be used to isolate users who are violating copyright laws, including those identified by the Recording Industry Association of America. ■

nww.com

Virus catcher

Check out an example of Shelob in action in this alert to University of Indianapolis students.

DocFinder: 9352

SECURE®
COMPUTING

Protect your corporate body from unknown attacks.

When it comes to protecting your network and mission-critical applications, Secure Computing's all-in-one, Sidewinder G_2® Security Appliance gives you sure footing without the pain of unwelcome surprises. Inside the Sidewinder G_2 resides the strongest application-layer firewall in the world—a firewall that has never been compromised. Other proactive defenses include best-of-breed protection against viruses, spyware, spam, threatening Web content, and much more.

To learn how you can protect yourself against these threats visit www.securecomputing.com/goto/spyware.

SIDEWINDER G_2
SECURITY APPLIANCE

Firewall/Security Appliance
Sidewinder G_2® Security Appliance

Strong Authentication
SafeWord®

Web Filtering
SmartFilter®

COMMON CRITERIA
EAL4+ CERTIFIED

Securing the connections between people, applications, and networks™

www.securecomputing.com

Tech stalwarts buy into XML gear

BY ANN BEDNARZ

Big vendors are taking notice of enterprise demand for dedicated hardware to handle the onslaught of XML traffic generated by services-based applications.

The latest to make a move is IBM, which last week paid an undisclosed sum — rumored to be more than $100 million — to acquire privately held DataPower. IBM's acquisition follows Intel's August purchase of Sarvega, which like DataPower, makes appliances for handling XML and Web services traffic.

Cisco also has turned its attention to more intelligent-application routing. The company in June announced its Application-Oriented Networking (AON) product line, which includes a module for the Catalyst 6500 switch that parses and secures XML and other message-based traffic. The Cisco gear incorporates technology from Intel-spinout Tarari, which makes XML-acceleration chipsets.

The market for XML-aware network gear took hold a few years ago, when users began to realize that processing bulky XML messages could eat nearly 80% of server processing power if it was done with traditional application server software. As more companies consider developing service-oriented architectures (SOA), IT executives are weighing the network implications of introducing XML-heavy application traffic, says Ron Schmelzer, a senior analyst at ZapThink.

"A lot of the network operations and data center people are saying, 'OK, great, make this SOA decision, but don't impose a huge burden on this network that I have to protect.' They may be demanding performance solutions even before some of these SOA projects get off the ground," Schmelzer says.

DataPower is among a handful of start-ups that shaped the market for XML appliances. Others include Forum Systems, Reactivity, Sarvega and Westbridge. Newcomers include Solace Systems, which in April unveiled message-routing product, and Xambala, which is working on content-aware processing technology.

IBM says DataPower's appliances will help its customers with their efforts to deploy SOAs. Big Blue plans to develop a family of SOA appliances based on the DataPower technology, which it's adding to its WebSphere software area, says Robert LeBlanc, IBM's general manager of WebSphere. DataPower's 70 employees will join IBM, and there are more hires on the horizon, LeBlanc says.

"If you look at all that SOA entails — there's security, there's management, there's process management," LeBlanc says. "All of the things that make up an SOA environment are candidates to be integrated on top of an appliance. We're going to look at all of those opportunities to extend the functionality that DataPower provides today."

IBM plans to develop new products, such as a blade version of DataPower's appliances, which today are 1U rack-mounted devices. DataPower's products include the XI50 Integration Device, which streamlines SOA infrastructures; the XA35 XML Accelerator, which offloads XML processing; and the XS40 XML Security Gateway, which helps provide message-level Web services security.

In the past IBM has focused on the software and professional services side of SOA, "and this announcement shows that hardware and network appliances play an equal role in making an SOA a reality," Schmelzer says. The acquisition puts pressure on other infrastructure platform vendors, such as BEA Systems and Oracle, to broaden their software- and services-centric SOA coverage, he says.

IBM wasn't the only vendor interested in acquiring DataPower, but it was the best fit, according to Jeff Fagnan, a partner at Atlas Venture. (Fagnan was an original investor in DataPower while with Seed Capital Partners and led the company's C round of funding six months ago while with Atlas.)

"IBM was the best potential partner given its leadership in the middleware space and its thinking about SOA," Fagnan says. DataPower wasn't profitable but has been growing fast. "The company and the whole market has really been on fire in terms of growth over the past year or so. DataPower has seen 50% quarter-over-quarter revenue growth of late," Fagnan says. "Despite that, the offer was too good for the board and management to refuse." ■

Active market

IBM isn't the only vendor interested in XML appliances. Here are some of the latest industry events.

Date	Event	Significance
October 2005	IBM buys DataPower	Purchase adds XML appliances to IBM's WebSphere family.
August 2005	Intel acquires Sarvega	Sarvega's engine for XML processing and security will enhance Intel's chipset and network adapters.
June 2005	Cisco unveils AON line	New modules incorporate technology from Tarari, which makes XML acceleration chipsets.

Gartner

continued from page 10

11% of their total project budget to compliance, and that's expected to hit 14% by 2009.

Several analysts tried to predict how the IT function will be changing over the next several years. Diane Morello suggested that IT professionals need to become more versatile. Morello identified four areas of expertise that will be vital for IT professionals in the next few years: technology infrastructure services, information design and management, process design and management, and relationship and sourcing management.

She said IT professionals will need to move beyond simply helping the business achieve its goals by providing the underlying infrastructure. They need to drive the business forward by proposing ways that technology and technology-enabled applications can cut costs and increase revenue.

More specifically, she encouraged IT executives in the audience to go back to their companies and develop new mobile and wireless applications and services or design reusable software components or figure out new ways to make use of unstructured data.

Morello recommended that people start on the road to becoming a "versatilist" by getting involved with groups outside of IT, learning about other disciplines, such as financial analysis, and building a strong network that includes people inside the company, as well as external customers and partners.

Hurd says HP on the right track

Convincing customers and partners HP is on the right track were the main points of HP's Hurd.

Hurd tried to deflect rumors that the company would soon sell one or two divisions — namely, its printer and network divisions. Hurd said HP would focus on its core products lines and wouldn't spin off any divisions.

Hurd said he is committed to HP's adaptive enterprise framework, developed by his predecessor, Carly Fiorina. But he was critical of the management structure that grew during her nearly six-year tenure.

It was a management process that "at its lunatic conclusion" had the CEO acting as a tiebreaker in pricing disagreements between the product group and a customer-facing group, Hurd said. "After careful analysis, I determined it was a bad model," he said, to audience chuckles.

Beyond the keynote addresses and session information, Gartner analysts made many key prognostications. Those include:

- Customers should watch for the next generation of firewalls — expected around 2007 — to combine traditional firewall protection plus intrusion prevention and other more advanced features. "Integrating these functions, which are largely separate boxes today will be an important step for users," Pescatore said. "It's very likely that vendors who haven't done anything with IPS in the past [will] use it in these next generation firewalls to climb into the enterprise arena."
- The many wireless networks make it difficult for users to move seamlessly between the different wired and wireless networks. Wi-Fi and wired LANs will be the first to come together as Wi-Fi controllers integrated in Ethernet switches. Cellular sets with Wi-Fi radios will enable users to choose Wi-Fi for bandwidth-intensive data applications. Wi-Fi roaming, QoS and power management will be required for true voice over Wi-Fi. The emergence of WiMAX will make fixed wireless access close in speed to wired alternatives. The use of unified memory architecture technologies will allow Global System for Mobile Communications and code division multiple-access voice traffic to be transported over Wi-Fi networks. IP Multimedia Subsystem will permit the convergence of wired and wireless service provider backbone networks, making the delivery of services applications and content available on either network.
- Virtualization technologies will increase the ability to effectively consolidate larger resources. Virtualization also will make distributed resources easier to manage, reprovision and use efficiently. Several changes will make virtualization critical to most companies in the next few years: processor capability has outpaced the performance requirements of many applications, and performance is relatively inexpensive, making overhead of a virtualization layer a non-issue. While processing power is becoming less expensive, space, power, installation, integration and administration are not inexpensive — and cost the same whether a resource is 10% or 90% utilized. The greatest inhibitor to any form of server virtualization is software pricing and licensing.

Tom Krazit of the IDG News Service contributed to this report.

EMC enters continuous data protection fray

BY DENI CONNOR

EMC this week is expected to announce its entry into the continuous data protection market, an increasingly crowded field populated with big names such as HP and IBM, plus a host of smaller companies.

EMC will use the Storage Networking World conference in Orlando to introduce its RecoverPoint, which is based on technology supplied by Mendocino Software. Other companies, including Availl (see Short Takes, page 23), FilesX and StorServer, also plan to show off CDP products.

The EMC software is designed to help customers continuously back up data, as well as instantly recover files and transaction-oriented data.

RecoverPoint, which runs on a Linux server, will save and recover data on any EMC, HP, IBM or Hitachi array, EMC says. It supports Sun Solaris, Windows 2003, and Oracle and SQL Server databases.

RecoverPoint differs from some other products on the market because it can be used to back up both file and database data to disk. Other products, such as Symantec's Backup Exec 10d for Windows Servers and LiveState Recovery 6.0, IBM's Tivoli Data Protection for Files and Microsoft's Systems Data Protection Manager, only back up files created on a network.

EMC is not the first big-name company to look to Mendocino for CDP technology. HP last week announced it has agreed to resell Mendocino's RecoveryOne software.

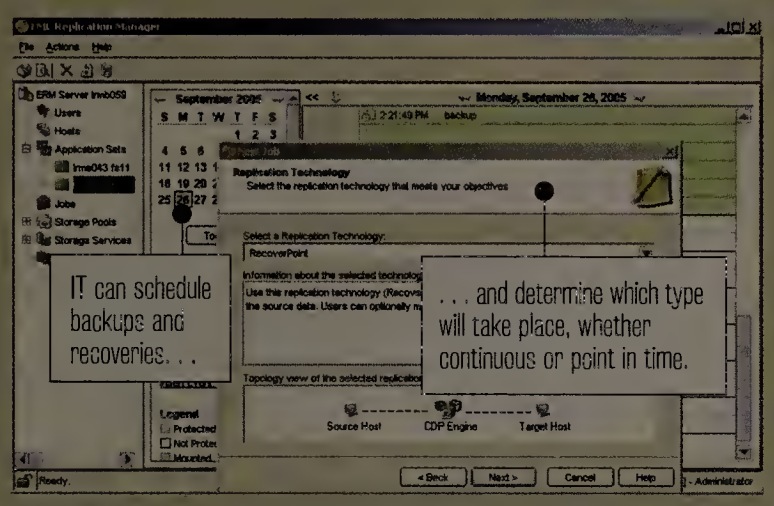
EMC plans to expand the enterprise focus of RecoverPoint in the first half of 2006 with support for Microsoft Exchange and IBM's DB2, as well as host operating systems AIX, HP-UX, Linux and Windows 2000. RecoverPoint costs $75,000.

Also, FilesX has announced CDP on Demand, software that can be used to restore Microsoft Exchange, Word and SQL Server files, and that allows regularly scheduled snapshots of data to be taken. Unlike Microsoft's System Data Protection Manager, CDP on Demand allows for unlimited snapshots. The software is available as part of FilesX's Xpress Restore, which starts at $10,000.

Also at the show, StorServer is expected to introduce a CDP option for its storage appliances that works with IBM's Tivoli Continuous Data Protection for Files. The application enables users to protect data on their laptops, desktops and file servers by backing it up to multiple locations, including those with StorServer Appliances. The boxes start at $3,500; CDP coverage costs $35 per laptop or desktop and $995 per server. ■

Making a full recovery

EMC's continuous data protection software is designed to help companies recover data from databases and files on a network.



Banking
continued from page 1

evaluating banks for compliance to the new guidelines in 2007.

The FFIEC, which includes the Federal Reserve System, the Federal Deposit Insurance Corp. and the National Credit Union Administration, says it considers single-factor authentication alone "to be inadequate for high-risk transactions involving access to customer information or the movement of funds to other parties."

In security parlance, factors are considered to be something you know, such as a password; something you have, such as a hardware token; and something you are, such as the unique print of your finger or the iris of your eye.

The FFIEC guidance lists a variety of factor possibilities, including USB token hardware, smart cards, password-generating tokens, as well as an assortment of biometrics. The FFIEC says it doesn't favor any particular method.

Banks and credit unions are starting to adopt stronger authentication, but are far from handing out tokens and capturing fingerprints and facial scans.

Bank of America, for example, is close to completing its nationwide rollout of SiteKey, based on technology from Passmark Security, which asks the online customer to select an image and personal phrases to share in challenge-and-response fashion. This validates the bank's Web site is real and is an extra measure of security if a customer's ID and password are stolen.

"At first we considered it an option for customers but now we've decided to make it a requirement," says Sanjay Gupta, e-commerce executive at Bank of America. "We want our customers to have strong protection."

But few banks have adopted hardware tokens or biometrics for widespread use in Internet banking.

U.S. Bancorp uses VeriSign's tokens in its high-end commercial banking operations. Tokens are in more prevalent use among European banks, such as Credit Suisse Group and Netherlands-based bank Rabba.

"Banks are already moving beyond just passwords for consumer confidence," says Gartner analyst Avivah Litan. "But the last thing banks want to do is provision tokens and biometrics." Cost is the primary inhibitor, she says.

There are also concerns that consumers may object to using tokens. A Gartner survey of consumers earlier this year found hardware tokens to be an unpopular idea.

However, some banks are forging ahead with distribution of security tokens. American Bank, which has about $527 million in assets and 20,000 customers, this July began offering the RSA SecurID token for generating one-time passwords to online banking customers.

American Bank, of Allentown, Pa., is suggesting, but not requiring, that customers use them for online banking, says Bob Turner, CIO at the bank. "It's voluntary. And we've decided not to charge them for it for the first three years." Turner estimates that subsidizing the tokens costs the bank about $25 per user.

About 10% of 7,000 customers who bank online use the RSA SecurID token, Turner says.

"A few of them have come back with comments that were negative," he says. "Some resist the technology because of the inconvenience they perceive it as having. Some found it cumbersome and don't want to carry it around, especially if they use other tokens in their job."

The bank explains to its customers that it's not adopting this one-time password technology because of a security breach but because it's considered better authentication than changeable, static passwords, which can be easily compromised when shared or stolen.

RSA SecurID tokens are starting to have an influence on how bank transaction services are provided at American Bank's online site, Turner says.

The bank also has made use of challenge-response questions on its site before completing certain types of funds transfers. When customers are making use of SecurID as the authentication means, the site doesn't require the challenge-response mechanism because security is considered better.

Turner says he didn't know the FFIEC would issue guidelines calling for adoption of strong authentication for high-risk transactions. But he says auditors that inspect the banks had talked about the possibility of new online banking guidelines this year.

Some security experts are skeptical about the FFIEC's admonition that there's great value in giving consumers two-factor technologies, such as password-generation hardware tokens, to stop the problems of online fraud and identity theft.

"Two-factor authentication isn't our savior," says Bruce Schneier, CTO and founder of Counterpane Internet Security.

Schneier says it's of little use against man-in-the-middle attacks, such as the case where an attacker installs a malicious Trojan on the user's desktop and then piggybacks into the session on the bank's Web site.

"His statement is accurate, and it's not a panacea," says George Rapp, vice president of IT at West Stonebridge Bank, which this summer began distributing RSA SecurID tokens to online customers. Free for the first year, the Chester, Pa., bank is charging $25 thereafter. "It does make my customers more secure." ■

Identity check

The Federal Financial Institutions Examination Council has indicated it wants financial institutions to make use of more than just a "single-factor" for authenticating customer identity in Internet banking. Here are three most commonly recognized "factors" for authentication:

- **Something you know**
  Password, personal identification number, shared secrets.
- **Something you have**
  Automated teller machine card, smart card, one-time password token.
- **Something you are**
  Biometric characteristic, such as a fingerprint.

Nortel eyes Motorola COO as next CEO

BY JIM DUFFY

Nortel last Monday surprised the industry by announcing that CEO Bill Owens will leave in mid-November and be replaced by Motorola President and COO Mike Zafirovski.

But not so surprising given Nortel's track record over the past few years, the move might not go smoothly. Motorola filed a lawsuit the next day against Zafirovski seeking to prevent him from taking the new job, based on an alleged breach of non-compete agreements.

Owens' retirement caught industry watchers off-guard in that the 65-year-old ex-vice chairman of the Joint Chiefs of Staff recently indicated that he intended to remain CEO after leading Nortel through a financial scandal and refocusing the company on its enterprise network operations.

Owens became CEO after Nortel fired then-CEO Frank Dunn in April 2004 upon determining he helped orchestrate Nortel's bogus accounting, which forced the company to restate years of earnings.

During a Webcast press conference, Owens said he was not asked to step down. He said he "openly and willingly" participated in the executive search for his replacement, which began after the company's annual shareholder meeting in June.

Zafirovski, 51, has a 30-year career of leadership with two of the world's highest-profile corporations, General Electric and Motorola.

"Zafirovski is well respected by the street, and seen as a competent manager in the telecom industry," wrote UBS Warburg Analyst Nikos Theodosopoulos in a bulletin. "Nortel has been in need of telecom and operational experience in the top role."

Ramesh Kapoor, CIO for the public school system in Virginia Beach, Va., says he's looking forward to new leadership at Nortel. Kapoor says the school district has had some problems with Nortel's Business Communications Manager VoIP gear and he has not been satisfied with Nortel's support. Kapoor says he hopes Zafirovski will bring new direction to Nortel.

Features Editor Neal Weinberg contributed to this report.


WebSphere
IBM
YOU -VS- INFORMATION ANARCHY
ONLY ONE WILL LEAVE THE RING!!
THE POWER OF ASCENTIAL SOFTWARE COMBINED WITH THE INNOVATION OF WEBSPHERE
RE USE OF ASSETS

Cisco
continued from page 1

signals with an IP infrastructure.

"[IPICS] is not a communications system in itself; it's something that enables disparate communication systems out there to work together in an IP format," says Brad Curran, an industry analyst with Frost and Sullivan who tracks government and military communications technology industries. "After [Hurricane] Katrina, we saw what a mess communications were. You had a lot of outside agencies coming in and it was difficult for them to all communicate. Something like [IPICS] would have helped a lot."

IPICS was developed by the newly formed Safety, Security Systems Business Unit.

Cisco is billing this effort as another of its emerging technology areas, similar to the launch in June of its Application Oriented Networking (AON) business unit. At the time of that launch, Cisco CEO John Chambers said the company would announce a new emerging technology every quarter over its next fiscal year. (In Cisco-speak, emerging technologies are different from its six advanced technologies — enterprise VoIP, home networking, optical, security, storage networking and wireless LAN. Chambers has targeted each as an eventual billion-dollar revenue source).

IPICS software runs on a Linux-based server and provides operators with an application interface that lets them control all communications links on the network.

An IPICS server acts as a central switchboard for any type of communication that comes into a network. This can include two-way handheld and mobile radio devices, cell phones, push-to-talk mobile phones, traditional analog and digital phones, as well as wired or wireless VoIP devices.

Radio equipment would terminate on an IP LAN via Cisco's Land Mobile Radio (LMR) Gateway, a Cisco router module that converts analog radio signals into packetized IP voice, and is currently deployed in public safety organizations. Cell phone handsets tie into IPICS via Cisco public switched telephone network/IP gateway equipment, used to link Cisco VoIP gear to carrier phone networks.

Once traffic is converted to IP, IPICS lets any device on the network connect with any other device, allowing IP phones and VoIP-enabled PDAs to call radios and cell phones. Administrators can set up users in push-to-talk groups with IPICS software, regardless of device type.

IPICS software uses XML messaging schemes to identify the types of communications devices managed by the system.

Public safety users have deployed Cisco gear to link their IP and radio networks, but the advancement with IPICS is the ability to link disparate radio, cell phone and other communications types under a single umbrella, says Shah Talukder, general manager of the Safety, Security Systems Business Unit.

"There are billions of dollars already invested in legacy radio equipment," Talukder says. "We're not saying to throw that away. Wherever there is IP, [IPICS] allows you to connect [existing] radio traffic to anywhere in the world."

While radio is the first step of IPICS, down the line users will see integration of video and data into the system, Curran says. This could involve sending digitized maps, graphics or text data to workers in the field, as well as consolidating various kinds of analog and digital video streams from multiple sources — such as security cameras — into IP.

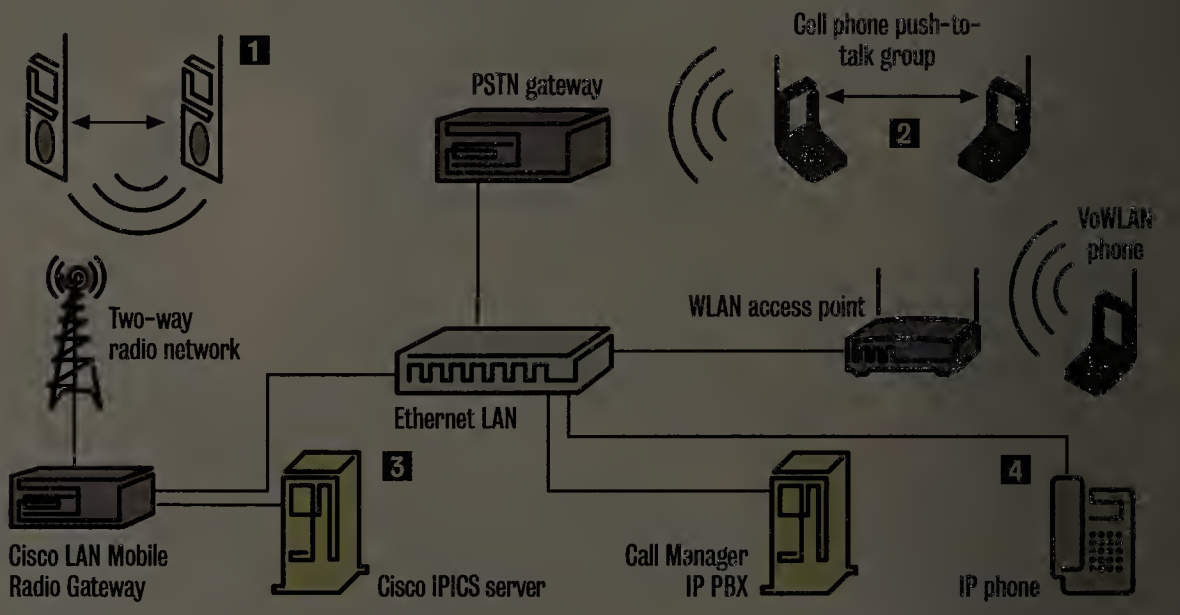
As for how far Cisco can take this technology, analysts are optimistic.

"People may not really realize how many people use radios," says Deb Mielke, managing director at Treillage Network Strategies. "It's not just police and fire departments — there's hospitals, trucking, taxis — any business involved in [mobility] or transportation."

Users should expect to see more integration of Cisco's IPICS technology along with WLAN and IP telephony, and its recent RFID and AON/XML initiatives, she says. "They're the only guys with all the [tools] that can tie it all together." ■

Everything connected

How Cisco's IP Interoperability and Collaboration System (IPICS) might work in an airport



1 Public safety and other crews with two-way radios connect to a Cisco LAN Mobile Radio Gateway, converting radio traffic into VoIP.

2 Push-to-talk cell phones tie into the network via PSTN/VoIP gateways.

3 With all traffic converted to IP, Cisco's IPICS server controls what traffic can communicate with what endpoints.

4 Staff in a command center or other offices can link to two-way radios and push-to-talk users via IP desk phones.

Juniper
continued from page 8

access and branch routers, according to Dell'Oro Group.

And sales from the Peribit, Redline and Kagoor Networks acquisitions were disappointing, according to UBS. "$11 [million] to $12 million in [third quarter] sales suggest little growth compared to when these companies were private," Theodosopoulos stated in his bulletin.

J-series tabulations are "not very relevant," Dolce says, because Juniper is shooting for the enterprise backbone with its M-series routers. Winning the backbone creates pull through for the J-series branch routers, he said.

"It's more difficult to sell the branch if someone else has the backbone," Dolce says. "Our efforts are focused on winning some of that core enterprise backbone."

Analysts also note that Cisco owns 90% of the access and branch router market, and its Integrated Services Routers are experiencing the fastest product ramp in Cisco's history.

"That's Cisco's bread-and-butter," says Zeus Kerravala, an analyst at The Yankee Group.

> "For a company looking to get into the enterprise, three-quarters of a billion dollars in business is not bad."
>
> *Scott Kriens, Juniper's CEO*

Market share aside, mindshare might be another albatross for the J-series. NetScreen user MIPS Technologies in Mountain View, Calif., is standardizing on Cisco for routing — and perhaps even security platforms, such as VPNs and firewalls.

"Single vendor instead of mix and match," says Steve Ozoa, Unix and network systems administrator at MIPS. "We've always been Cisco for routing. [J-series] really just didn't come to mind."

Sales of products from Juniper's three most recent acquisitions, meanwhile, are "on plan," Dolce says.

"I haven't been disappointed in anything this quarter," he adds. "It was a great quarter."

"First Juniper stepped up to the plate and hit the ball out of the park; and then they took the bat and beat the catcher to death," says Steve Kamman of CIBC World Markets. "What they delivered was well over and above what we were looking for."

Going forward, Juniper will fine-tune the global channel system put in place over the last year and continue transitioning its sales teams to develop relationships with companies and sell them solutions instead of boxes, Dolce says. From a product perspective, Juniper offers everything that's important for a corporation, he says.

As for potential conflicts with service provider customers that Kriens alluded to three years ago, Dolce says Juniper has worked things out.

"A lot of this security business gets to the enterprise via a customer premises equipment resale or a managed service arrangement with a carrier. We figured out the best way to do both," he says. ■

YOU VS "WHY'S THAT RED LIGHT BLINKING?"

REDUCED DOWNTIME.
REDUCED BUSINESS CHAOS

Sterling Commerce leads the world in helping businesses collaborate with their partners.

Of course, we've had a 30 year head start.

For over 30 years, Sterling Commerce has led the industry in helping successful organizations work more effectively with suppliers, subsidiaries and customers. Now, with the first platform to meet all the challenges of real-world multi-enterprise collaboration, Sterling Commerce can help you achieve end-to-end visibility, and real-time control over shared business processes. So you can make faster, better-informed decisions to help cut costs and accelerate time to market. In fact, a majority of the world's leading companies already depend on us. That's a tough act to follow. Contact us today. Or visit us at **www.sterlingcommerce.com**

BUSINESS APPLICATIONS / BUSINESS INTEGRATION / BUSINESS INTELLIGENCE / BUSINESS PROCESS MANAGEMENT / SOLUTION DELIVERY

sterling commerce

NET INFRASTRUCTURE

■ SECURITY ■ SWITCHING ■ ROUTING ■ VPNS ■ BANDWIDTH MANAGEMENT ■ VOIP ■ WIRELESS LANS

Enterasys beefs up WLAN security

BY PHIL HOCHMUTH

Enterasys last week announced wireless LAN access points and a wireless switch for controlling and securing Wi-Fi network access.

The vendor introduced the RoamAbout AP4102 Unified Access Point, a device that can act as a thin or stand-alone access point. Also announced was the RoamAbout AP1002, a dual-radio 802.11a and 802.11b/g thin access point. To control these devices, Enterasys introduced the 8400 Wireless Switch.

The gear is targeted at large corporations looking to secure their current wireless LAN (WLAN) infrastructures or build one from scratch.

The 8400 Wireless Switch is designed to sit in a data center and control as many as 120 thin access points across a LAN, directly connected to the switch or not. The box includes four Gigabit Ethernet ports and provides services such as fast handoffs of traffic from roaming clients among access points, automatic radio frequency adjustments, and rogue access-point detection and physical location pinpointing. It supports five times as many thin access points as the 8100 Wireless Switch, which was introduced in May.

When attached to a 8400 Wireless Switch, or Enterasys' previously announced 8100 device, the AP1002 provides simpler management and security control than a stand-alone access point, because all configuration, intelligence and processing are done on the switch, Enterasys says.

For smaller deployments, or if more intelligence is required on the access point, users can deploy the AP4102 Unified Access Point, which can run as a thin access point, connected to a Wireless Switch or as a stand-alone device that sits on the network with its own IP address.

The box also can act in LAN-LAN mode, or as a wireless bridge between two wired networks, such as a link between two adjacent buildings with no connecting copper or fiber.

The RoamAbout 8400 WLAN is available and starts at $12,000. The AP4102 is scheduled to be available next month for $700, and the AP1002 in December for $450.

Trapeze, AirDefense unite

Also on the WLAN front, Trapeze Networks and AirDefense have announced a partnership to integrate their respective WLAN switch and security products. AirDefense's wireless intrusion-detection and intrusion-prevention technology will be integrated into Trapeze's Mobility Point access-point hardware, allowing the devices to detect WLAN intrusions and collect data on attacks. The integration will involve a software upgrade for Trapeze products.

The integration is part of a broad Trapeze effort to cooperate with vendors such as Aruba, Cisco and D-Link to allow third-party WLAN access points and switches to work together. ■

Short Takes

■ **Tizor** has announced a security appliance called Mantra that can monitor multiple databases for auditing purposes, including those from Microsoft, Oracle and Sybase. Mantra can be configured to audit data transfers according to templates for regulations that include the Sarbanes-Oxley Act, Payment Card Industry Data Security Standard, California Security Breach Information Act and Health Insurance Portability and Accountability Act. Mantra starts at $25,000.

■ **NetContinuum,** a maker of Web application firewalls and secure application gateways, has named Varun Nagaraj as its CEO. Nagaraj previously held management roles at Extreme Networks and Ellacoya Networks. He replaces Gene Bannam. NetContinuum also announced it has closed a $15 million round of venture funding led by Menlo Ventures. The company, formed in 1999, is based in Santa Clara, Calif.

TOLLY ON TECHNOLOGY
Kevin Tolly

Taking the Office to Mac

While generalizations are usually dangerous, it is probably safe to say that for many of us Microsoft Office is the tool set we use most. So all contemplating saying adieu to Windows for Mac's OS X needs to find a way to replicate the same in their new environment. Fortunately, for the most part, it is relatively painless and there are several paths to take.

The easiest, but more costly, route is to purchase Microsoft's Office 2004 for the Mac. With this approach, you get Mac versions of Word, Excel, Project and most likely the highest level of compatibility with the Windows equivalents. Instead of Outlook as the e-mail client, you get Entourage (more about that later), and Access is notably absent. There isn't a Mac version or equivalent offered by Microsoft.

If all you require are basic functions of the main office trio — no Visual Basic for Applications functions or the like — you might find all you need with the "free" NeoOffice/J. This application suite is offered under the GNU public license and is essentially the Apple OS X version of the OpenOffice suite. It implements word processing, spreadsheet, presentation and drawing functions.

NeoOffice/J can open, edit, save and so forth in the native Microsoft file formats, which is convenient for documents that have to move between systems. It even has some handy features missing from Microsoft Office, such as exporting directly to Adobe PDF format.

For those of you wanting to make flashy documents that can leverage the rich set of media in iTunes and iPhoto, you can get Apple's iWork duo — Pages and Keynote. More like Microsoft Publisher than Word, Pages can function as a simple word processor or help you put together some impressive documents.

To date, for me at least, the only area of frustration has been in trying to find a replacement for the local storage of e-mail that Outlook 2003 gives me. In theory, I shouldn't have a problem. Entourage, mentioned earlier, is Microsoft's implementation of the Outlook client for Mac. (There was an earlier Outlook for Mac product that has since been replaced by Entourage.)

In my first few months of living the Mac life, I found Entourage was not up to my requirements and despaired that it would never offer me the level of e-mail that I'd been accustomed to. In fact, I even wondered if this is intentional on the part of Microsoft.

While I never used the previous product, my first and continuing impression of Entourage is that Microsoft deliberately set out to build a product that wouldn't pass muster as a corporate alternative to the Windows Outlook client.

According to a review of documentation and online postings early in the summer, Entourage has reduced functionality — for example, being able to read public folder items but not create or edit them. For my part, I couldn't even get my in-box to synchronize (it should have) and ended up using Outlook Web Access or Citrix to access corporate e-mail.

Last month, Microsoft introduced Service Pack 2 for Office 2004. Not only did it provide updated support for public folders (such as allowing read/write), but it solved my in-box synch problem.

With that, my only major productivity hurdle was removed. Now, I have the benefits of Mac while maintaining the basic requirements of the corporate office.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Acquisitions fill gaps in Symantec security line

BY ELLEN MESSMER

Symantec is still spending hundreds of millions of dollars annually to develop new products, but the company recently stepped up spending on acquisitions as well to bolster its offerings.

Symantec this month completed buyouts of Sygate Technologies and WholeSecurity for undisclosed amounts, and reached a deal to acquire BindView Development for $207 million.

Symantec says that buying these companies will help round out its security products portfolio in several ways, the common thread among them being policy enforcement.

Acquiring WholeSecurity, a start-up in Austin, Texas, gives Symantec a method for e-commerce security that lets a Web site block dangerous malware on the online customer's desktop before granting access to services. WholeSecurity's Confidence Online software, which is used by eBay, Deutsche Bank and Visa, can identify and block malicious code based on its behavior rather than a specific signature. This can provide threat detection at an early stage before new attack code has been fully analyzed.

"It's the zero-hour protection," says Brian Foster, senior director for product management at Symantec, explaining the purchase of the 32-employee outfit. Symantec employs 14,000.

While Symantec intends to continue to sell WholeSecurity's Confidence Online products, it will integrate the behavior-based technology into Symantec's anti-virus and the Symantec Client Security desktop software, which includes anti-virus and a desktop firewall.

The acquisition of Sygate, a privately held company in Fremont, Calif., which has about 200 employees, also was carried out with an eye toward bolstering Symantec Client Security.

Symantec expects to continue selling Sygate's policy-enforcement product, Sygate Enterprise Protection (SEP), in the short term. SEP can enforce desktop use of VPN, anti-virus and patch updates based on corporate policy.

The goal is to integrate SEP into future editions of Symantec Client Security and then phase SEP out, Foster says. No timetable has been announced for doing that.

The acquisition of Houston-based BindView, expected to close early next year, is one in which Symantec has not announced plans to phase out products. Symantec says acquiring BindView will give it a line of vulnerability assessment and IT compliance software that complements its own.

BindView, whose IT compliance software is used by about 5,000 companies and government agencies, has 550 employees. The security firm reported $72.9 million in revenue last year, with an anticipated $84 million in revenues for this year.

BindView makes bv-Control and bv-Admin products, which scan desktops, server and other network gear without using agents. In contrast, Symantec has software called Enterprise Security Manager, which requires a host-based agent on the monitored machine in order to report about vulnerabilities, configuration and compliance with security policies.

Symantec says it is acquiring BindView to offer its customers both, while acknowledging agent-based software will cost more.

Gartner analyst John Pescatore says the debate over the merits of agent-based vs. agentless software for security monitoring is a timeless one for the industry.

With agent-based software, "the huge benefit is the deeper information about that node," Pescatore says. "The bad thing is agents can be expensive to install and manage."

Another advantage in using agent-based software is scalability in larger networks of 70,000 nodes or higher where scanning without agents is slow, says Randy Streu, vice president of ConfigureSoft, which competes against BindView. Agentless approaches to scanning don't work well in some networks, such as satellite links, he adds. ■

Buying binge

Recent Symantec acquisitions:

Company	Product focus	Acquisition price	Employees
BindView	Vulnerability and configuration management.	$207 million	550
Sygate Technologies	Endpoint security and policy enforcement.	Undisclosed	200
WholeSecurity	Behavior-based security; anti-phishing.	Undisclosed	32

NOTE: SYMANTEC COMPLETED ITS BUYOUTS OF SYGATE AND WHOLESECURITY THIS MONTH, AND ANNOUNCED PLANS THIS MONTH TO BUY BINDVIEW.

Symantec tests appliance to protect databases

BY ROBERT MCMILLAN, IDG NEWS SERVICE

Engineers within Symantec's R&D organization have built an appliance that could eventually lead the company into the database security business.

The unnamed appliance is a preconfigured server that sits on the network and monitors database traffic, looking for inappropriate queries. "We're providing Big Brother in a box, if you like, to just keep a gentle eye on people. And if people deviate from their normal patterns, we can flag that," says Gerry Egan, group product manager with Symantec's Advanced Concepts Group.

The appliance, which has been under development for several years, monitors network traffic using the same underlying "sniffing" engine as Symantec's Network Security 7100 Series intrusion-prevention appliance. But the 15 engineers working on the project also have developed their own software, which then analyzes the database queries. The technology has been tested by a handful of Symantec customers since September, and the company is expected to decide within the next few months whether to bring it to market.

The current version of the Symantec appliance does not block suspicious queries — it monitors and reports on what the database is up to — but that feature is being considered for a future version, Egan says.

"Our product particularly comes into play where there are valid or authorized users of the database who now start to abuse the privilege," Egan says. The product could be used to detect employee or partner fraud, or to warn database administrators (DBA) when their applications appear to be acting in a malicious manner.

Symantec is testing prototypes of the product with customers in the healthcare and financial services industries, as well as with educational and government users, in a trial run that is scheduled to go on through the end of this year. "At that point, it will be up to management whether they would like to build it into a product," Egan says.

Should that happen, Symantec would be the first major vendor to develop this type of product, analysts say. Database security appliances are sold by only a handful of small companies, including Imperva and Guardium, but corporate customers are becoming increasingly focused on data security and regulation compliance.

"We're starting to see a little more interest in this area because of all this identity theft," says John Pescatore, an analyst with Gartner.

Imperva CEO Shiomo Kramer, whose 3-year-old company sells a similar product, says he is not surprised to see Symantec looking into this market. During the past few quarters, demand for this type of product has accelerated, spurred by laws such as the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act, as well as by California's SB 1386, which requires companies to notify customers after security breaches, he says.

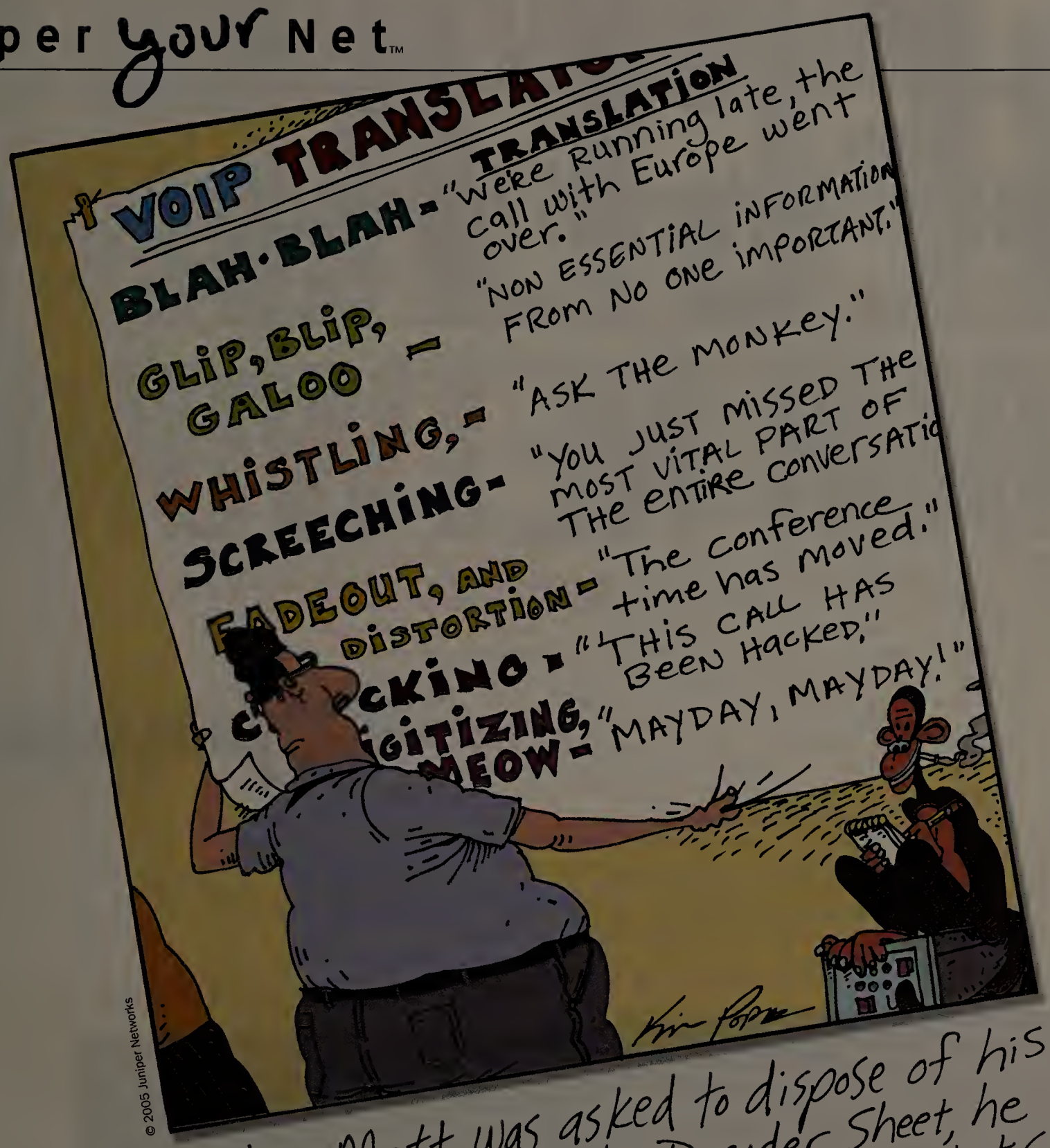
"We are seeing much larger projects in the pipeline, and we're seeing more and more customers with dedicated budgets to this type of initiative," Kramer says. Imperva's customers are primarily in the financial services, e-business and healthcare industries, he says.

The Symantec prototypes use a Dell PowerEdge 1850 server running Linux, but if the product is brought to market, it could be based on virtually any type of server, Egan says.

Based on initial customer feedback, however, Symantec seems likely to stick with its appliance concept and not try to develop a software-only product.

"The DBAs are a very conservative bunch of people, and they definitely don't like people installing things on their servers," Egan says. "It also means, from the chief security officer's perspective, he can drop it in without even telling the DBAs... The database administrators have the keys to everything, and who keeps tabs on them?" ■

Juniper Your Net™



When Matt was asked to dispose of his company's Translator Decoder Sheet, he knew they felt confident and ecstatic with their new Juniper Voip solution.

>> Tired of cal s th t so nd like th s? Want cost benefits of voice over IP, but sick of delay and dropped data? Try *Secure and Assured VoIP*, only from Juniper Networks. Juniper ensures voice receives higher priority and bandwidth, for highest-quality performance. And our application-aware platforms stop *hackers*, DoS attacks – all network threats. Expect more from your VoIP. Juniper *your* net and get unequalled interoperability, with unrivaled performance and security: http://www.juniper.net/solutions/voice/

Juniper NETWORKS

888-JUNIPER (1-888-586-4737)

RECLAIM YOUR NETWORK

Spam, spyware, and virus protection at an affordable price.

BARRACUDA NETWORKS

- No per user license fees
- Prices starting at $1399
- Powerful, enterprise-class solution

Barracuda Spam and Spyware Firewalls

SC MAGAZINE 2005 FINALIST

Network Computing Editor's Choice

Network Computing 2005 WELL-CONNECTED AWARDS WINNER

LINUXWORLD

NETWORK magazine | innovations awards 2005 PRODUCT OF THE YEAR SECURITY

POWERFUL EASY TO USE AFFORDABLE

Aggressive reseller program available. Get more info by visiting www.barracudanetworks.com or (888-ANTI-SPAM)

ENTERPRISE COMPUTING

Short Takes

■ **Availl** is unveiling Version 3.0 of its continuous data-protection software for Windows servers. Availl Backup now includes the capability to back up databases and files on the network. The software can enable the failback of servers to any time and allows continuous backup of data on local and remote servers. It transfers only byte-level differences and compresses data. Version 3.0 starts at $995 per server.

■ **SenSage** has announced a new version of its secure data-retention software designed to help customers overcome management obstacles and streamline compliance and monitoring processes. SenSage 3.5 includes a new integrated management console, extended clustering and high-availability capabilities, plus enhanced reporting and analytics. SenSage aggregates, retains and analyzes activity logs for applications running on the network so users can identify threats to regulatory compliance and internal or external threats. The software runs on a Red Hat Linux server. SenSage 3.5 starts at $70,000.

■ **Microsoft** last week made available what could be the final beta of Windows Server 2003 Release 2, which is slated to ship by year-end. Server operating-system release candidates are typically final betas before general availability. This beta was made available for download from Microsoft's Web site (www.networkworld.com, DocFinder: 9342). Key to Release 2 is an identity technology called Active Directory Federation Services. One of the final pieces of Microsoft's identity-management platform, ADFS also represents the company's first implementation of the WS-Federation protocol that it developed with IBM. Microsoft has positioned WS-Federation as the linchpin for integrating security infrastructures among companies.

Linux on handhelds pushed

BY NANCY GOHRING, IDG NEWS SERVICE

Motorola and PalmSource are among the companies that lined up last week behind an initiative that aims to promote the use of Linux on cell phones.

The Mobile Linux Initiative was launched by Open Source Development Labs (OSDL) to tackle technical challenges and support the adoption of Linux on handheld devices.

"There is a lot of momentum for Linux on handhelds, specifically for mobile phones," says Eirik Chambe-Eng, president and cofounder of Trolltech, a company that builds a GUI on top of Linux for mobile devices and has joined the OSDL effort. But because more companies are developing Linux for mobile products, there is a need to coordinate the efforts, he says.

"All of the Linux developments are a disparate set of projects," says Ben Wood, research vice president for mobile devices at Gartner. "It's not like write once, run anywhere."

Companies involved in the Mobile Linux Initiative hope to pull together their developments in a common direction.

The group's technical achievements also could be important. Companies such as Trolltech depend on a good Linux kernel that can efficiently use processor and electrical power in devices.

"This initiative is aimed at creating one good kernel of [operating system] that uses the resources of the mobile phone," Chambe-Eng says.

Mobile Linux Initiative at a glance

Members:	MontaVista Software, Motorola, PalmSource, Trolltech, Wind River Systems
Mission:	"To accelerate adoption of Linux on next-generation mobile handsets and other converged voice/data portable devices."
Technical focus areas:	Boot-up speed, memory footprint, multimedia framework, power management, radio interface, security.
Web site:	www.osdl.org/lab_activities/mobile_linux/mli

In addition to Motorola, PalmSource and Trolltech, MontaVista Software and Wind River Systems were named as the first members to participate in the initiative.

Linux-based devices have been popular in Asia, but haven't had much traction in Europe or the U.S. Motorola has shipped more than 3 million devices in China that are based on Linux and Trolltech's software, Chambe-Eng says.

He expects that such manufacturers as Motorola will begin making more of a push with these products into Europe and the U.S. in the next six to 12 months.

Linux is attractive to mobile manufacturers for its capabilities, as well as cost. Linux may solve some of the problems that manufacturers face with building full-feature phones that may include cameras, color displays, video cameras and Web browsing.

"The [operating systems] that manufacturers are using are starting to run out of horsepower," Wood says.

He doesn't think Linux necessarily poses a serious threat to suppliers of mobile devices, such as Symbian and Microsoft.

Nokia, for example, is quite committed to Symbian, and while Wood expects Nokia may look to use open source products for some of its non-cell phone devices, it's unlikely that the company would soon turn to Linux for its mobile phones.

Nokia's 770 Internet tablet is based on open source software. But Linux also is becoming increasingly attractive, because it can reduce costs for manufacturers.

The Symbian operating system costs manufacturers between $5 and $7 per phone, Wood says. A Linux-based phone would probably come in under that.

While there is a growing interest in Linux in the mobile phone market, it probably won't have major implications soon, he says.

"This is just a steppingstone in the emergence of Linux as a potential platform for mobile phones," he says. ■

CA buys e-mail-archiving software

BY DENISE DUBIE

Computer Associates last week made public its acquisition of an e-mail archiving-software vendor whose technology CA says will help round out BrightStor, its suite to manage storage.

The company did not disclose how much it spent on iLumin Software Services, which was founded in 1996.

CA will sell iLumin's Assentor product line as is, with plans to eventually integrate it into its storage and broader management portfolio. CA says the acquisition brings cross-platform e-mail security, archiving and data protection to its BrightStor management suite.

Industry watchers say the technology will help CA address a growing need among its enterprise customers, which are being called upon to manage e-mail in line with compliance requirements.

"It will give CA the ability to manage e-mail as an information life-cycle management application, according to regulatory requirements," says Mike Karp, a senior analyst with Enterprise Management Associates.

"Eventually, it will make sense for CA to integrate the technology with its Unicenter management software," Karp says.

Despite its previous partnership with iLumin, CA is still playing a bit of catchup with competitors — such as IBM, EMC and Symantec — in the e-mail-archiving market, industry watchers say. HP also offers e-mail-archiving technologies via its Reference Information Storage System.

The acquisition news came a week after CA's chief met with the press to discuss the company's plans in year two of a four-year strategy aimed at reconfirming its position of management leadership. Storage is among four technology areas CEO John Swainson has designated for growth and development within CA, alongside management, security and optimizing business services. ■

HP user group grabs spotlight at show

Encompass president embraces members of defunct Interex customer organization.

BY TOM KRAZIT, IDG NEWS SERVICE

ORLANDO — On the first day of the inaugural HP Technology Forum last week, Kristi Browder's real job evaluating servers took a back seat to speech-making, press interviews and receptions honoring her fellow users of HP's technology.

Most of the time, she's the IT director at Silicon Laboratories, currently rolling out HP servers using Advanced Micro Devices' Opteron chips to engineers at her company, who design chips for wireless networks.

But last week, Browder was one of the most visible HP users in Orlando as the president of Encompass, which is HP's major hardware user group following the demise earlier this year of another major HP user organization, Interex.

Encompass was first known as DECUS, Digital Equipment's user group. Two acquisitions later, Encompass now serves as a voice for HP technology users and a liaison between the company and the technical community, Browder said.

One of Encompass' primary roles is to put on user-oriented conferences, such as the HP Technology Forum, where HP professionals from around the world can share technical knowledge and take training classes in various technologies. Those conferences used to be independent affairs, but HP decided last year to exert more control over its user conferences and consolidate the HP World events into the HP Technology Forum.

Interex attempted to hold HP World without HP's support, but the organization closed in July, citing financial difficulties in preparing the show. That left 100,000 HP users without a formal organization representing their interests.

Encompass has reached out to the former Interex members, offering discounts on Encompass membership and naming Interex leaders to the Encompass board of directors, Browder said.

"We want to embrace the former Interex members and give them a home," she said.

Browder's fellow IT professionals are starting to relax again after five years of looking over their shoulders for a pink slip, she said.

"This has been a pretty brutal five years as an IT professional," Browder said. "But people are starting to have fun again, and that's one of the things behind this event. We want this event to be fun."

Browder has seen more movement in the IT professional ranks this year, as companies again start hiring IT workers.

> "This has been a pretty brutal five years as an IT professional. But people are starting to have fun again."
>
> *Kristi Browder, IT director, Silicon Laboratories*

After much hand-wringing in the IT community about the outsourcing and offshoring of IT jobs, Browder noted some companies are bringing work back into the U.S.

Encompass is still focused on helping IT professionals prepare for the possibility that their jobs might be sent elsewhere, Browder said.

Part of that training involves helping IT workers develop skills on the business side of the technology world, either to manage relationships with outsourcing vendors or join those companies themselves, she said.

On the technology side, Encompass is focused on helping HP users manage technology transitions, such as the move to high-end servers based on Intel's Itanium 2 processor, Browder said.

Smaller companies do not have the resources to move their servers to newer technology at the same pace that HP or Intel would like.

Encompass helps those companies by keeping alive support for older technology and training those companies on the new systems, she said. For example, users could choose among training classes, such as OpenVMS system administration or deploying Oracle's grid computing software at the HP Technology Forum. ■

EMC: Where it is and where it's going

ON STORAGE
Mike Karp

My recent meeting with several EMC managers resulted in some intriguing information. Here's some of what I heard and where I think EMC is going.

First came the obligatory chest pounding: Revenue is up in every geographical segment, and overall corporate growth in the second quarter was 19%. In 2006 the company, now with almost 25,000 employees, intends to grow at twice the market rate, which if most estimates are correct would give EMC a year-over-year growth rate of 14%.

EMC is on track to spend $1 billion in R&D this year, which puts it in a rather exclusive club — companies that spend more on R&D than their competitors receive in annual revenue. Last year, EMC spent about 10% of its revenue on R&D.

By way of comparison, other storage members of this club include HP, IBM and Sun. According to those companies' latest published annual reports, HP spent $3.7 billion (roughly 5% of its revenue), IBM spent $5.7 billion (roughly 5.9%) and Sun spent about $1.8 billion (roughly 16%) on R&D.

ILM and more

As for the future, EMC looks to be following a two-track strategy. First, expect information lifecycle management (ILM) to play a continuing role in most aspects of EMC's storage planning. Second, as we have predicted for a year, EMC clearly is beginning to realize that there may be life beyond storage. The overall goal, according to an EMC spokesman, is to move the company "from being a storage company to being an information management company."

Let's look first at ILM. It is all about efficiently moving data between the various tiers of storage to save money while making sure that data is retrievable according to established service levels. ILM is also about clichés.

For instance, a standard set of clichés applies to ILM products and services from all the leading vendors, including EMC. All vendors admit, for example, that ILM is not a product but an assemblage of hardware, software and services. Alas, you and I can't go out and "buy an ILM."

That circumstance notwithstanding, however, EMC — like its chief competitors — is prepared to make it easy for you to buy all your ILM-related hardware, software and services from a single source should you want to do so. (Guess who?)

EMC will make storage tiering easier through several new technology initiatives.

First, during the coming months look for the company to roll out arrays that use low-cost Fibre Channel drives, which can be put in the same arrays as higher-performance Fibre Channel devices.

This will be a cross-industry trend, similar in most ways to what is happening to serial-attached SCSI and serial ATA. Look for lots of silicon providers (Agilent for one) to offer several low-cost Fibre Channel options, including 4G-bit/sec systems.

Next, expect EMC to make two key moves in network-attached storage: moving the file virtualization technology it got through the Rainfinity acquisition to the front and center of its network-attached storage marketing efforts, and withdrawing its largely unsuccessful NetWin line of NAS products.

Expect EMC to continue turning to many partners, particularly Outer Bay, for much of the software glue that ILM requires. And expect it to roll out a broader mix of consulting services aligned around ILM.

Karp is senior analyst with Enterprise Management Associates, focusing on storage, and is author of Network World's *Storage in the Enterprise newsletter. He can be reached at mkarp@enterprisemanagement.com.*

Getting to the Core of Backup Problems

By eliminating network congestion, Force10 curbed the unpredictable backup times hurting this insurance firm's productivity.

"It was difficult to explain to our executive group that we couldn't reliably predict how long the backup would take."

Colin Hines
Senior Administrator of Network and Security Infrastructure at Tower Hill

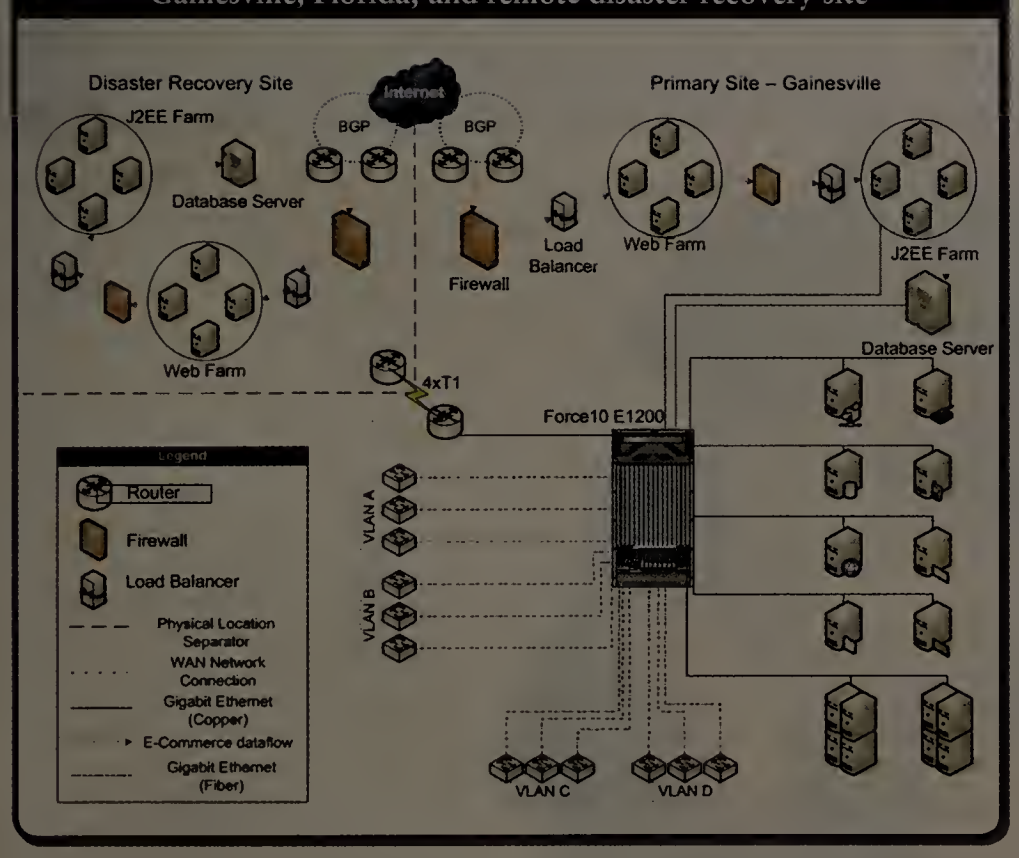
On those occasional nights when the backup process for Tower Hill Insurance Group's policy management application took a full 16 hours, employees arriving for work would find themselves locked out of the application. "No one could do anything," says Colin Hines, Tower Hill's Senior Administrator of network and security infrastructure. "It was difficult to explain to our executive group that we couldn't reliably predict how long the backup would take."

Based in Gainesville, Fla., and with offices in Kentucky, Tower Hill is a leading property and casualty insurer providing coverage for homes, rental properties, personal automobiles, and commercial property to 500,000 policy holders in Florida. The company has a Web-enabled IT and billing infrastructure that supports its 400 employees and enables it to attract new agents and cost effectively scale its business.

Each night Tower Hill backs up data relating to policies and claims – about 4 terabytes. With the total volume of company data doubling every two years and hitting 15 terabytes this year, the strain on the network began to show. In particular, the time needed to back up its business-critical policy management application became unpredictable.

To ensure data integrity, IT first backs up the application to capture daily changes, then runs an update process that inserts information such as policy renewal dates, and then backs up the application again. While the update process completed in a predictable timeframe, each backup took anywhere from four to seven hours. On average, the three-stage backup and update process required 13 hours. When backup times ran longer, employees arriving for work were locked out of the system.

Logical diagram of Tower Hill's primary network in Gainesville, Florida, and remote disaster recovery site



Ripple Effects

The network became the first thing the server group blamed for the varying backup times, Hines notes, since they could easily check out their equipment. Hines, on the other hand, was spending 25 to 30 percent of his time monitoring and troubleshooting the network, and finding work arounds to congestion problems. When he determined that the volume of data coming into blades on his two core routers was greater than the blades' connection to the routers' backplanes, he helped the server team work around the oversubscription problem by balancing where servers plugged into the network.

It bought them some time. But it meant Hines needed to direct the server team each time a new server was brought on line. The unpredictable backup times impacted IT in other ways, as well. Routine maintenance and software releases, for example, had to be done on weekends as it was impossible to do them at night.

With traffic volumes continuing to escalate, Hines knew something had to give. "Our core couldn't handle the amount of data we were pushing through it," he says. "And I want the network to be something you can just plug into and it goes." It was time to upgrade the network core.

Wanted: Performance and Reliability

When Hines began evaluating new core devices, he knew what he wanted. "We buy best in breed," he notes. "We needed line-rate throughput, non-blocking gigabit interfaces, and access lists. And we needed reliability."

Tower Hill's search for a new core router led them to Force10. Hines installed a Force10 TeraScale E1200 switch/router in early 2005 and has watched the combined time for both pre- and post-update backups of the policy management application drop to a consistent 2.5 hours. What used to be a 13 hour or more backup and update process is now routinely done in five.

"One of the really attractive things about the Force10 E1200 is that it's full rate line speed, non-blocking. It's not oversubscribed, as were other core switches I evaluated," says Hines. Each server now has true gigabit access to every other server and device on the network. In addition, the E1200 supports active redundant links with immediate failover if one link fails. As a result, each Tower Hill server with dual-gigabit interfaces has a 2-Gbps connection to the core whereas the previous core routers only supported one active connection in a dual-homed configuration.

In addition, the E1200 is a fully redundant system, ensuring continuous uptime for the network. And Hines has been impressed with the level of support Force10 provides. "We're a moderate-size business," he notes. "I've never had support this excellent."

Core Benefits

With a line-rate, congestion-free core switch/router in place, Tower Hill is assured of predictable performance from the network. As a result, backup times have been dramatically reduced, ensuring critical applications are always available during business hours and freeing IT staff to perform routine maintenance, software releases and other tasks in the evening rather than wait until weekends. IT's management overhead has also dropped, as the burden of ongoing network monitoring and troubleshooting has been eliminated.

"Force10 gave us the ability to exonerate the network," Hines says. Tower Hill now has a predictable network with plenty of headroom to accommodate ever increasing traffic loads.

DON'T LET SPYWARE SABOTAGE YOUR ENTERPRISE.

The next threat is no threat with Trend Micro.

Expose and eradicate spyware with Trend Micro's Enterprise-class, multi-level, anti-spyware solutions. They're the only solutions that block and clean at the gateway—the most effective point of control. Trend Micro. #1 global leader at the gateway and industry pioneer. Whether it's a virus, worm, spyware, or spam, we've got you covered.

For a FREE evaluation and IDC whitepaper,
go to www.trendmicro.com/spyware

TREND MICRO™

APPLICATION SERVICES

Plumtree overhauls flagship portal line

BY STACY COWLEY, IDG NEWS SERVICE

Plumtree last week began rolling out a major new version of its portal software product line, including new bundling options, broader platform support and a stand-alone product the company intends as the first in a line of customized industry applications.

"Of all the releases we've done in the past, this is the one where we've literally gone top to bottom with the product and made everything better," says Andrew Dunning, director of product marketing at Plumtree.

At the heart of Plumtree's G6 line is its flagship Plumtree Foundation software for building corporate portals. The new version includes features aimed at easing application development, including new debugging tools, an Asynchronous JavaScript and XML API, simplified user interface customization tools and enhanced configuration utilities.

Plumtree also is extending deployment options for its Java-based software. G6 is currently certified for Windows and RedHat Linux. Within the next few months it will be certified for SuSE Linux, Solaris and AIX as well, Plumtree says. In addition to Internet Explorer, G6 supports the Firefox, Netscape and Safari browsers.

Plumtree is creating three different bundles for its applications suite: a Portal bundle focused on its Foundation software; a Community bundle that adds collaboration, and simple application creation tools for building functionality such as polls and surveys; and an Application package that adds a new product, Plumtree Process, for managing and automating business processes. Plumtree Process is based on business process management technology that Plumtree licensed from Fuego. Plumtree's Portal suite is priced at $267 per user, while its Community suite is priced at $344 per user and its Application suite is priced at $396 per user, plus $38,000 per processor for the Plumtree Process module.

Plumtree also unveiled its first vertical application, High Performance Store Management Application (HiPer), a retail-focused portal it co-developed with a customer, restaurant chain Applebee's. HiPer, a stand-alone application, is now in use at Applebee's and will be available to other retailers by year-end.

Plumtree will soon be subsumed by BEA Systems, which agreed in August to buy Plumtree for around $200 million. Plumtree's Dunning says he doesn't expect the acquisition to cause any disruptions for customers.■

CommuniGate adds voice features

BY JOHN FONTANA

CommuniGate Systems last week released the newest version of its messaging platform designed to provide users with improved voice support.

The company, formerly known as Stalker Software, released CommuniGate Pro 5.0, which includes VoIP features that let customers cluster servers to create scalable infrastructure to support voice along with call-logging and bill-back features. The software includes conferencing, call-control features, voice mail storage within in-boxes and the CommuniGate Programming Language for customizing voice applications.

The company says it hopes to create a voice platform using Session Initiation Protocol (SIP), which is finding acceptance with messaging vendors, as well as instant-messaging platforms.

"VoIP is a technology whose time has come," says Michael Osterman, president of Osterman Research. "The quality of service issues have pretty much been solved and the cost savings can potentially be pretty dramatic. This is where all messaging systems are going." Osterman says eventually the real hook for VoIP will be integration with other network services.

Voicing success

VoIP technology is expected to penetrate **45%** of corporations by 2007, according to Osterman Research.

CommuniGate is focusing its 5.0 release on applications as well as infrastructure improvements, including SIP clustering that lets users add nodes to a live cluster. The server also supports call detail record logging and integration with billing systems and click-to-call from Outlook and Web mail. CommuniGate Pro also handles network address translation traversal and includes the ability to deal with non-standard SIP softswitches and clients, including support for extensions Microsoft has written for SIP around authentication.

The server includes multipoint conferencing capabilities that let users create and host online conferences, an auto-attendant and automatic call distribution that supports call queuing for call centers.

CommuniGate Pro also delivers voice mail to e-mail inboxes. Voice mail also can be forwarded to a mobile device or notification sent via IM.

The application features require a connection to a public switched telephone network, which can be either a service or premise equipment.

Also included is the CommuniGate Programming Language for building custom applications or extending the built-on applications. The development platform supports WebDAV, .Net, Simple Object Access Protocol and VoiceXML.

"We see this as what Internet communication is and will be in the future," says Thom O'Connor, director of product architecture for CommuniGate. "It is just another method of accessing communication ultimately." O'Connor says CommuniGate will be adding video mixing in a future upgrade to the server.

CommuniGate competes with Gordano, Rockliffe, Mirapoint, Scalix, IPSwitch and Sendmail. On the SIP infrastructure side the competition comes from Nortel, Avaya and Cisco.

The server runs on Linux, Macintosh, Windows and Unix.

CommuniGate Pro 5.0 is priced at $699 for 25 users. The clustered version starts at $27 per user starting at 500 users with a minimum of two machines in the cluster.■

Short Takes

■ **GroundWork** last week made available GroundWork Monitor 4.0. The latest version of the **network management platform** features a unified user interface that the company says prevents IT managers from having to navigate through multiple open source tools. The software, built on a popular open source monitoring application called Nagios, runs on a Linux server with memory in disk and can be used with or without agents. The agent option, recommended by the vendor, uses a Perl script that runs on managed devices and extracts management information from managed devices. Customers also have the option to write plug-ins specific to their environment to broaden the software's monitoring capabilities. Also new to this version, GroundWork opened the architecture to enable easier integration among multiple open source tools. GroundWork Monitor 4.0 costs about $16,000 for an annual subscription.

■ **Workshare** last week released a new version of its **document integrity software** that includes the company's Document Hygiene technology, designed to guard against privacy breaches and the disclosure of sensitive information. Workshare Professional 4.5 works at the client to block the transfer of documents that contain sensitive information, company officials say. Document Hygiene filters a document's content for key words that violate privacy or relate to intellectual property, financial information or data controlled by regulations that should not leave the company. Also with Version 4.5, Workshare has included support for Unicode and has boosted the performance of the software's information-discovery features, the company say. Workshare 4.5 works with Outlook, Notes and GroupWise. It is priced at $349 with a 10-user minimum; volume discounts are available.

NET INSIDER

Scott Bradner

Apple's unnoticed announcement?

Apple CEO Steve Jobs made a pile of product announcements on Oct. 12. The video iPod got most of the press, but it was another announcement that best indicates Apple's future directions.

Apple introduced: a new iMac, complete with remote control; Front Row, a music, picture and video display application that works with the remote control; Photo Booth, an application for taking pictures of yourself with the camera built into the new iMac; the video iPod; iTunes 6, to support the new iPod; and, finally, a deal with Disney that will let you download and view primetime ABC TV shows shortly after they air for $1.99 each.

Not surprisingly, the video iPod got most of the press. Much of the coverage wondered about Jobs' change of heart as he had long maintained that people were not going to walk around watching video on a screen that small. Other reporters wondered about the video pricing. A few days later the coverage switched to focus on the outrage expressed by the local ABC TV stations, which seem to think that no one will watch their shows when they are broadcast.

I'd rather take Jobs at his word. I expect the market for watching roughly $2 shows on a 2.5-inch screen is rather small. So maybe Apple is up to something else. Maybe the important announcements were about everything except for the video iPod.

I expect that the reason Apple was able to get music publishers to agree to the original iTunes store was that it was "only" for the Mac and thus not much of a threat. It was only later that Apple released the Windows version and took over the market. Maybe Apple is trying to lure the movie and TV companies with the low-threat, 2.5-inch iPod screen while downplaying the iMac's ability to play the same, as well as very much higher quality video on its big screen or to a projector.

Just maybe Apple is about to make real the long predicted video revolution in which content owners make their product available directly to customers, bypassing the filtering function of the TV networks and cable companies.

If it becomes as normal for people to reach out and grab high-quality video content as it has become to use Google, companies will be able to significantly revamp their training processes by pushing much of the them to people at home rather than maintaining special training centers.

Disclaimer: Harvard does offer in-home training (see http://extension.harvard.edu/), but Harvard's "special training centers" are quite nice. The above is a personal, not the university's view on Apple's motives.

Bradner is a consultant with Harvard University's University Information System. He can be reached at sob@sobco.com.

>THIS IS **THE WAY**

AIRLINES EARN THEIR WINGS IN CUSTOMER SERVICE.

>THIS IS NORTEL™

nortel.com

SPECIAL FOCUS APPLICATION OUTSOURCING

Farming out apps: More eggs, more baskets

BY ANN BEDNARZ

Dutch banking giant ABN Amro's huge new IT outsourcing deal illustrates the growing trend of companies farming out work to multiple providers instead of negotiating one large contract.

Announced last month, the deal has five vendors splitting $2.2 billion in IT work over five years. IBM won a $1.9-billion IT infrastructure outsourcing component, including servers, storage systems and desktops; Infosys and Tata Consultancy Services drew $125-million and $250-million contracts, respectively, for application support and enhancements; and Accenture, IBM, Infosys, Patni Computer Systems and TCS earned preferred-supplier status for an unspecified amount of development work.

The bank says its IT overhaul will save the company more than $600 million by 2007, including savings accumulated by cutting 1,500 jobs and transferring 2,000 jobs to the outsourcing vendors (leaving ABN Amro with about 1,800 in-house IT staff). In addition, the outsourcing arrangements will provide better and faster access to new technologies, which will lead to more sophisticated product development for ABN Amro's clients.

ABN Amro chose to divvy up the work among five outsourcers, based on the broad range of services its business requires. "There is simply no single vendor who can satisfy all the different needs of the bank," says Lars Gustavsson, ABN Amro's CIO. "We also believe that specialization in certain cases will prove much more business-aligned and agile over time."

Analysts predict more companies will pursue a multi-vendor approach. One of the most anticipated deals could come from GM, which has a multibillion dollar outsourcing contract with EDS set to expire next year. "All signs point to that going to a multisource deal when it expires," says Barry Mason Rubenstein, a senior analyst at IDC.

Others going the multisourcing route include French carmaker Renault, which in March awarded outsourcing contracts to Atos Origin, Computer Sciences Corp. and HP; Royal Dutch/Shell Group, which orchestrated an IT services agreement, reportedly in the $1 billion range, with IBM and Wipro Technologies; and Bank of America, which is outsourcing work to EDS and Hewitt Associates.

The trend toward multisourcing allows IT organizations to gain access to best-of-breed providers while reducing the risk of having a single vendor responsible for vast corporate IT resources, Rubenstein says.

"Users are more sophisticated about their sourcing strategies, they're more capable of managing multiple vendors, and they're looking for expertise to meet their very specific applications needs," says Allie Young, a vice president at Gartner.

Even though the application-related contracts will require ABN Amro to manage multiple service providers, the company expects to gain efficiencies by sourcing projects judiciously. Infosys and TCS will maintain the bank's existing applications and — along with Accenture, IBM and Patni — develop new applications across all business units.

Industry experience is particularly critical for application outsourcing, which Young defines as a multiyear contract for managing, enhancing and maintaining custom or packaged application software. Short term, narrowly defined application maintenance projects don't fit the bill (see graphic).

The distinction between discrete application maintenance work and strategic application development is significant, Young says. Application outsourcing calls for providers to take over ongoing management and operations of apps in an effort to yield business-process improvements.

"If companies make ad hoc outsourcing decisions, driven only by cost savings, chances are they will fall short of really delivering business objectives," Young says.

Over the past few years there has been an increased acceptance of application outsourcing — and greater activity in that segment of the outsourcing market, according to Gartner. The research firm forecasts a five-year growth rate for enterprise application outsourcing of more than 6%.

The move toward global sourcing — a services model that includes a combination of onsite, onshore, near-shore and offshore resources — has helped accelerate application outsourcing adoption.

"If you can digitize your applications work, it no longer needs to be the work that is done by Tom, Joe, Mary and Sue, who sit next to each other in cubicles. It now goes to India or China or Russia or wherever you want it to go," Young says. "The network becomes very, very significant to enable this new world of application outsourcing that can tap into global delivery models."

The big issue for companies is deciding what work to keep in-house, what to divvy up among onshore and near-shore providers, and what is most suitable for offshore providers, IDC's Rubenstein says.

Traditional IT infrastructure outsourcers, such as IBM, HP and Sun, have expanded into application outsourcing. Consultants and systems integrators with specialized application skills, such as Accenture and CSC, also offer outsourced application services. At the same time, offshore service providers traditionally associated with project work — such as Infosys and TCS — are evolving their businesses to include full-fledged application outsourcing.

According to Evans Data Corp., companies are most likely to outsource software development projects to save money. It's the No. 1 driver for 28% of 390 respondents in the firm's most recent enterprise development survey. Other top drivers include the need for specialized development expertise not available in-house (19%), the desire to avoid hiring extra personnel who may not be needed long term (14%) and to accelerate development (9%).

Even as more companies look to outsource strategic application work, not all choose to divvy up those services. Late last year Zurich Financial Services signed a seven-year, $1.3-billion outsourcing agreement with CSC to hand off new application development and support services for the insurance company's more than 4,000 applications. Apps within the scope of the agreement support all insurance lines written by Zurich and all business processes, including new business and underwriting, customer service and claims.

Accenture, too, landed a major application outsourcing contract last year, signing a six-year, $740-million deal with Barclays. The U.K. financial services firm is outsourcing application development and management for a broad range of its commercial and retail banking systems.

What the deals have in common is the companies are ceding control over business applications to external parties. It's a distinct change in attitude from the days of developing massive, highly customized business applications, Young says. "That led to a lot of ad hoc decision making, multiple instances of certain applications, huge integration efforts and extremely costly ongoing maintenance of applications that far exceeds the initial cost to even write them," Young says. "That's the situation many, many companies are in now. They're looking at applications work that is incredibly labor based and are taking different roads to achieve new levels of efficiency." ■

▶ Read our New Data Center section that discusses such issues as what to outsource to doing due diligence in selecting an outsourcer. Begins on page 58.

Skin in the game

Project-based application services differ from true application outsourcing engagements, according to Gartner.

Project-based outsourcing	Application outsourcing
• Contract terms vary by weeks, months or years.	• Multiyear contracts include renewal and termination terms and conditions.
• Service provider relationship is limited to performance on a discrete project.	• Parties assume ongoing relationship for management and governance of continuous services.
• Deliverables and milestones are tied to scope of work.	• Service levels include productivity, quality and responsiveness measures.
• Effectiveness of engagement is clear upon project completion.	• Effectiveness of engagement accounts for incremental IT and business improvement.
• Innovation is tied to the discrete scope of work.	• Innovation is negotiated and delivered over the life of the engagement.
• Client assumes project risk.	• Risk is negotiated, shared by client and service provider.

A COLLABORATION SYSTEM ONE HUNDRED TIMES MORE ELABORATE

ISN'T ONE HUNDRED TIMES MORE EFFECTIVE.

It's time for a collaboration solution people will use – and can actually manage. Ipswitch Collaboration Suite is designed specifically for small- and medium-sized businesses. So it's easy to set up and integrate with popular e-mail clients, including Microsoft® Outlook®. Featuring real-time collaboration tools, e-mail, group calendaring and scheduling and instant messaging. It's collaboration without complication.

Ipswitch Collaboration Suite.
It just works.

IPSWITCH™ Collaboration Suite

Visit www.ipswitch.com to download a 30-day free trial.

IPSWITCH™

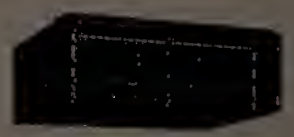
THRUST SSC (SUPER SONIC CAR) SETTING THE LAND SPEED RECORD ON OCTOBER 15, 1997 IN THE BLACK ROCK DESERT, NEVADA.

Introducing the industry's highest performance Ethernet switch family ready to deliver wire-speed non-blocking performance to 1.14 billion packets per second (or up to 3.42 bpps per 7-foot telco rack). Foundry's BigIron RX Series offers the highest density Gigabit and 10 Gigabit Ethernet switching and routing solution in the industry and is built on a distributed and redundant switch architecture that ships ready to support 100 Gigabit Ethernet. Featuring support for scalable Ethernet switching, IPv4/IPv6 routing, consistent low latency for all packet sizes and advanced quality of service design. The BigIron RX Series meets and exceeds the needs of a wide range of environments including Enterprise LAN, HPC, MANS, and next generation data centers.

FIND OUT MORE ABOUT THE BIGIRON RX SERIES AND HOW YOU CAN TAKE ADVANTAGE OF A LIMITED TIME OFFER TO REDEFINE PERFORMANCE AND RELIABILITY IN YOUR NETWORK. LOG ON TO WWW.FOUNDRYNET.COM/BIGIRONRX.

BIGIRON RX-16

BIGIRON RX-8



BIGIRON RX-4

GRAND PRIZE 2005 BEST OF INTEROP NETWORLD+INTEROP Las Vegas 2005

FOUNDRY® NETWORKS

The Power of Performance™

FOR MORE INFORMATION PLEASE CALL: US/CANADA 1 888 TURBOLAN, INTERNATIONAL +1 408.586.1700 OR VISIT OUR WEBSITE AT WWW.FOUNDRYNET.COM

Foundry Networks, Inc. is a leading provider of high-performance Enterprise and Service Provider switching, routing and Web traffic management solutions including Layer 2/3 LAN switches, Layer 3 Backbone switches, Layer 4-7 Web switches, wireless LAN and access points, access routers and Metro routers. Foundry's 8,500 customers include the world's premier ISPs, metro service providers, and enterprises including e-commerce sites, universities, entertainment, health and wellness, government, financial, and manufacturing companies.

SERVICE PROVIDERS

More peering clashes seen possible

BY CAROLYN DUFFY MARSAN

Telecom industry analysts fear that peering disputes such as the recent flare-up between Level 3 Communications and Cogent Communications could become more common as the largest Internet backbone providers get bigger and more powerful through mergers and acquisitions.

Peering is a contractual relationship between ISPs that allows them to exchange Internet traffic over each other's backbone networks. Initially, most peering relationships were free of charge. In recent years, large Internet backbone providers have begun charging smaller access providers to carry their traffic.

ISP experts fear that peering disputes could become more common after the mergers between AT&T and SBC, and MCI and Verizon, are completed.

"As the big backbones get bigger in terms of how much traffic they are running over their networks, they can play hardball with some of the smaller networks," says Melanie Posey, director of the telecom service at IDC. "This issue is about balance. The whole idea behind peering is that you exchange similar amounts of traffic. If the big backbones are carrying more than the small ones, they're going to say: 'Pay up.'"

The issue of balance is at the heart of the peering dispute between Level 3 and Cogent.

On Oct. 5, Level 3 discontinued its peering relationship with Cogent, which resulted in some blocked Internet traffic for customers of the two companies. Level 3 reestablished the connection Oct. 7, but warned customers it would shut down its connection with Cogent again Nov. 9 unless Cogent agrees to a new peering contract.

Peering disputes such as this one were more common in the late 1990s, as UUnet and other major Internet backbones began moving from free to paid peering arrangements. The question is whether peering disputes will rise along with the current ISP industry consolidation.

"What will happen with the mergers and acquisitions is that there will be a lot more smaller providers paying more transit fees because they won't qualify as a peer with the big backbones," says Brownlee Thomas, principal analyst for telecom and networking at Forrester Research. "The trend is toward more formal interconnection agreements, and there will be costs associated with them."

Thomas warns that smaller, local DSL providers could be more susceptible to peering disputes than top-tier providers that offer both local and long-distance access.

"It's always going to be an access/ingress issue," Thomas says. "Most enterprises don't have more than one carrier for the local loop so these disputes are more potentially problematic if the local DSL provider is involved. . . . That's why a smart enterprise negotiator should put specific speeds in the contract — not services such as DSL — so that carriers have to give them a fractional T-1 if there's a problem with the local DSL provider."

Analysts say that there's not much that the industry can do to prevent peering disputes.

"These are commercial, bilateral agreements that are negotiated on a one-off basis," Thomas says. "The enterprise doesn't have any protection except in the terms and conditions of its contract."

"Some smaller ISPs and customers are starting to scream about regulation, but getting the FCC involved in peering is a bad idea," Posey says. "This is a marketplace issue. There's no law that says an ISP has to peer with anybody else. The ISP should decide if they want to or not."■

Short Takes

■ **SBC** and sister company **Cingular Wireless** last week announced they will deploy a next-generation network architecture called **IP Multimedia Subsystem** from Lucent. IMS is an architecture that defines how an IP network should handle voice calls and data sessions. It essentially takes the place of the control infrastructure in a traditional circuit-switched phone network, but it separates services from the networks that carry them. Cingular and SBC will implement their IMSs separately, but they are both using Lucent, which will enhance their opportunities to give users a seamless wireless and wireline experience, according to SBC.

EYE ON THE CARRIER
Johna Till Johnson

Managing convergence requires teamwork

Convergence changes things. Although combining voice and data across the same packet network wouldn't, in theory, imply dramatic changes in the organization and operations of an IT department, in practice companies that implement convergence find themselves revisiting almost every aspect of their operations.

That means making some of the obvious changes — such as combining voice and data teams — as well as some that might be less evident.

Most IT executives realize it's a good idea to combine voice and data teams, but from what I've seen, many haven't gotten to it yet. As I've previously noted, if you're looking to implement convergence, and you haven't yet integrated your teams, here's a relatively painless way to do it: Ask each group to create a selection matrix for selecting VoIP PBXs and phones, along with a short list of preferred vendors. Let the groups work independently at first. Then gather them in a room and jointly review the selection criteria. You'll most likely find it an eye-opening experience on both sides.

But that's just the first step. You'll also need to thoroughly revamp how you handle management — not just of the data network but of the company as a whole. Why? Because one of the second-order effects of convergence is that it stresses the infrastructure as never before. With convergence, applications that previously had unlimited access to network and computing resources now have to compete for resources. Without the tools and processes to fairly allocate resources — and to measure how well those allocations are working — you run the risk of having your mission-critical applications trample each other.

For example, you'll often hear that the best way to handle voice across a converged network is to give it top priority. That works fine if you've configured your infrastructure so that "top-priority" traffic has bounded latency across the WAN — but doesn't help much otherwise. So you'll need a service-level agreement with your WAN providers that covers latency, plus tools that let you validate that your WAN is performing adequately.

Moreover, you'll want to limit the bandwidth available to your voice traffic so an unexpected spike in voice calls doesn't starve data applications. Yes, I know that sounds counterintuitive. How can any application be more important than voice?

But you don't want an unexpected surge in interoffice gossip to shut down, say, Oracle Financials just as your accounting team is attempting to close the books at the end of the quarter.

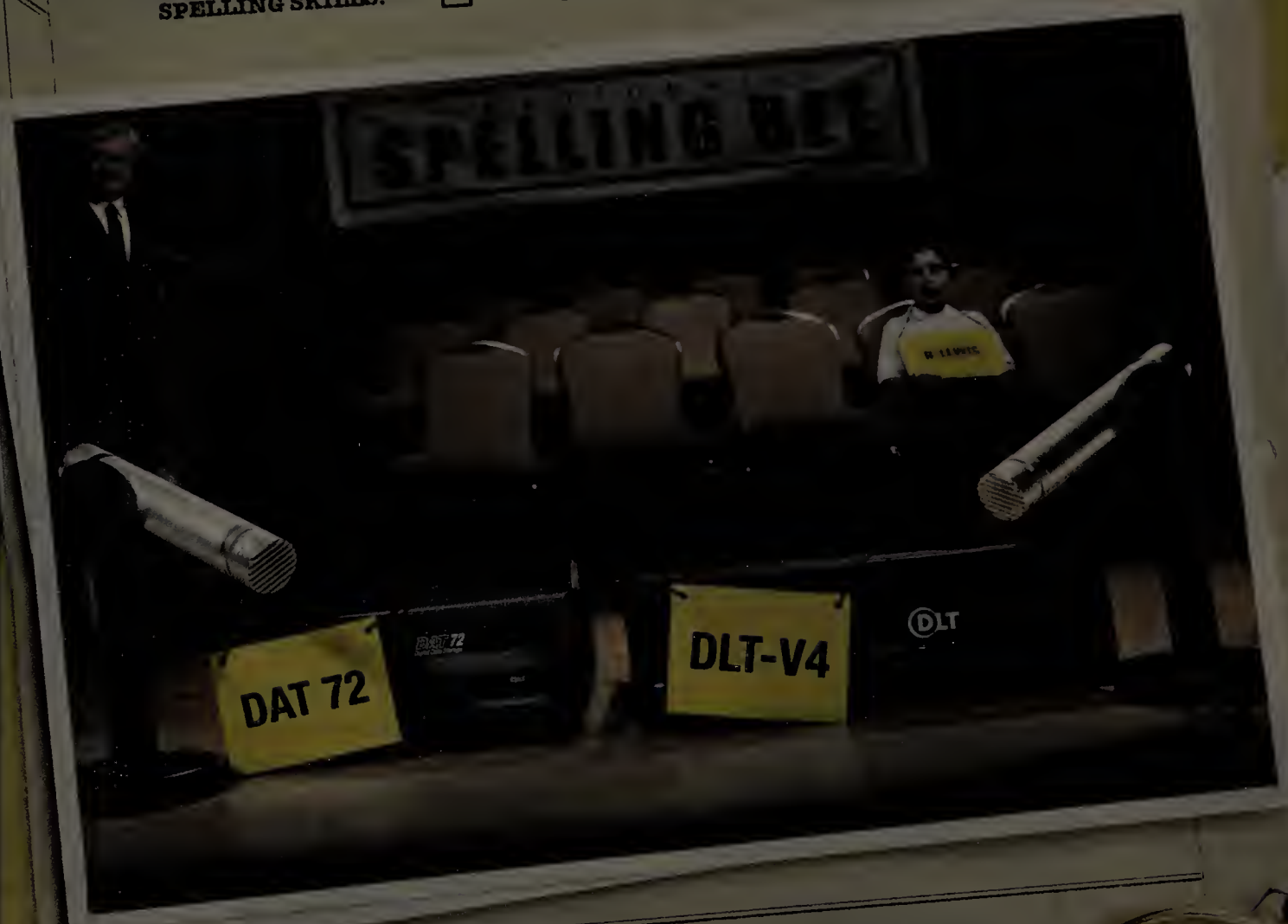
Obviously, you'll want to architect your network to set those bandwidth limits appropriately to ensure adequate bandwidth for your voice traffic. Architecting your converged network to ensure optimum performance for all applications will require close collaboration among your voice, data and management teams.

Bottom line? When it comes to convergence, management matters.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

DLT-V4 vs. DAT 72

	DAT 72	DLT-V4	NOTES
CAPACITY:	☐	☑	4X THE CAPACITY
SPEED:	☐	☑	3X FASTER
PRICE PER GB:	☐	☑	2X BETTER
SPELLING SKILLS:	☐	☐	



A recent field test placed the DLT-V4 and DAT 72 tape drives head-to-head in a local spelling bee. Both were given the word "sesquipedalian," which neither even attempted to spell. Possibly due to stage fright. As for data backup abilities, the winner was clear. **The new DLT-V4 has 4x the capacity, 3x the speed, and 2x better price per gigabyte than DAT 72.** It includes DLTSage™ diagnostic management software and DLT*ice*™ archival WORM functionality. Plus, it uses the same media as its predecessor, the DLT VS160. How do we know? It's been tested. **Visit DLTtape.com**

DLT

TECHNOLOGY UPDATE

AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

App IDS guards databases

BY AARON NEWMAN

Applications and their back-end databases are increasingly exposed to application-level intrusions, such as SQL injection, cross-site scripting attacks and access by unauthorized users — all of which bypass front-end security systems and attack data at its source.

What has emerged in response is a new level of security — application security — that implements traditional network- and operating system-level intrusion-detection system (IDS) concepts at the database (that is, application) level. Unlike generic network or operating system solutions, application IDS provides active, SQL-specific protection and monitoring, protecting thousands of prepackaged and homegrown Web applications. For example, application IDSs monitor and defend critical data against database-specific attacks such as buffer overflows and Web application attacks, and will also audit these events.

Application security differs from network and host security. The applications vary, but the attacker's goal is always the same — to access the database. Since applications use SQL to communicate with the database, a good application IDS parses SQL, providing an objective layer of protection that understands the traffic yet remains independent of the application.

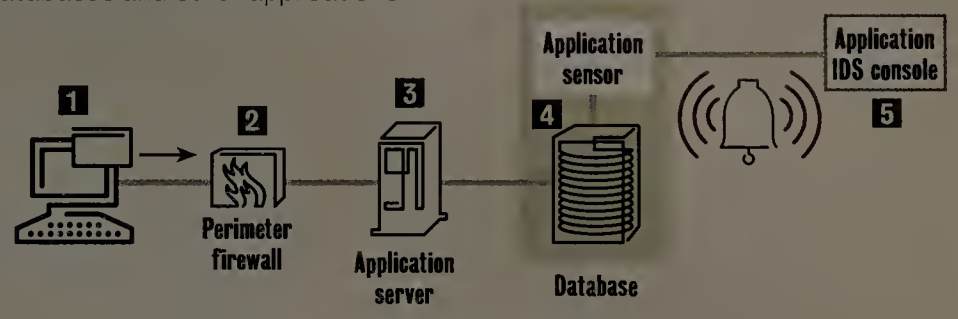
Most application IDSs have three components. The first is a network- or host-based sensor. A network sensor is connected to a switched port analyzer port, which is configured to see all traffic within a database. In contrast, a host sensor resides directly on an application. Sensors gather SQL transactions, interpret them and determine whether the traffic warrants an alert. If an alert is necessary, it is passed to the second structural component, a console server. The server stores events and is the central point for sensor maintenance, such as policy configuration and updates. The third component of an application IDS is a Web browser, through which administrators can modify IDS settings, monitor events in real time and generate reports.

Take a SQL injection attack, in which an attacker tries to bypass the SQL statements defined on a Web server in order to inject his own statements. Assume the expected input is the user name Bob with the password Hardtoguess.

Presented with this input, the database finds a match with a row in the WebUsers table and thus the application authenticates the user. To break in, a SQL injection attack will trick the application into believing the correct credentials were submitted. Let's assume the attack uses the password 'blah' OR 'A'='A' so the attack SQL statement created would be: SELECT * FROM WebUsers WHERE Username='Bob' AND Password='blah' OR 'A'='A'.

HOW IT WORKS: Application intrusion-detection system

An application IDS provides SQL-specific protection and monitoring for databases and other applications.



1. Attacker launches SQL injection attack via the application's Web logon screen.
2. The attack goes through the firewall to the application server.
3. The application server asks the database using SQL to look up the database record and evaluate the credentials submitted.
4. The application sensor looks at the SQL statement and sees it is an attempt to fool authentication.
5. The sensor takes action, which usually includes alerting the console.

Evaluated logically 'A'='A' is always TRUE, thus the WHERE clause now matches all rows, and the attacker is validated by the application even without a correct user name or password. The application server accepts the input and is fooled into allowing the attacker past. In doing so, the application server requests data from the database through SQL commands.

With an application IDS in place, the sensor gathers the SQL commands, deciphering what tables and columns are being accessed in the database and if it is "normal" or an attack. If the action is not allowed by the IDS policy, the sensor determines the threat level of the attack and takes action, usually by alerting an administrator's console and/or via e-mail.

This is just one example of the kind of application-layer attacks companies are facing today. By implementing an application-level IDS to protect this vulnerable data, organizations can protect against the latest attacks and threats.

Newman is CTO and founder of Application Security, Inc. He can be reached at anewman@appsecinc.com.

Got great ideas?

■ *Network World* is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Senior Managing Editor, Features **Amy Schurr (aschurr@nww.com).**

Ask Dr. Internet

By Steve Blass

We have a collection of books and papers we want to track and check in and out like a real library. Ideally, the system would be accessible over the Internet and allow for the use of a bar-code scanner to simplify the check-in and check-out process. Commercial library solutions we have looked at are more expensive than what we can afford, and they don't seem flexible enough to support our in-house naming conventions. Is there any open source or moderately priced software that might fit our needs?

Try Koha (www.koha.org), an open source integrated library system released in early 2000 and backed by an active development community. Koha runs best on Linux platforms behind an Apache Web server, and uses MySQL for database storage. Koha is installed through a straightforward script, included in the distribution. Once up and running, you will have to prepare your listings for import into the Koha library system. Libraries typically use machine-readable cataloging record formats for the representation and communication of bibliographic and related information in a machine-readable form. The program MarcEdit, available at www.networkworld.com, DocFinder: 9327, has tools for getting your listings into the right format for Koha import. Koha also supports tracking bar codes and can be used with several different scanners.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD
INSIDE THE NETWORK MACHINE

Mark Gibbs

Obsessed with music, Outlook list

This week we take a break from our current VoIP obsession and instead focus on some of our other obsessions.

Music, for example. We have a large collection of digitized music and we'd like to preserve the context of an album's context. It's irritating to listen to an album we've ripped where the tracks on the original flowed from one to the next and the player pauses between each track because they were ripped into separate files.

Of course you could rip the album to a single file but then you would not be able to easily find the start of any particular track. In short, your choices are imperfect playback or unmanageable content.

If you, like us, have theorized about a standard to fix this, theorize no longer. A group called ID3 (www.id3.org) is working on a proposal to add table of contents and chapter data to any file that uses the ID3 tag.

The ID3 tag is a data structure that is commonly used in a number of audio file formats, including MP3, AAC, WMA and Ogg Vorbis, and stores meta-information such as artist, album and release date. The entire ID3 tagging scheme is a de facto standard and can be applied to any file, although its use outside of audio is rare.

ID3 tags are prepended as the file's header and the reason they don't interfere with the original contents is any code that parses data is supposed to ignore data structures it doesn't understand.

ID3 Version 1 was limited in the amount of data it could store (all data fields were of a fixed length and totaled 128 bytes), but Version 2 tags are, in comparison, huge (as large as 256M bytes). Version 2 tags consist of a series of chunks of data called frames (in common with MP3 data structures), and each frame can be as much as 16M bytes in size.

There is even support for synchronized lyrics and audio encryption.

There are no restrictions on what kind of data can be stored in ID3 Version 2 frames so anything from raw text (Unicode is supported) to images and even program code can be embedded. There is even support for synchronized lyrics and audio encryption.

Anyway, what got us excited was the proposal for table of contents and chapter frames (www.networkworld.com, DocFinder: 9340). In this scheme chapter frames define the start and end of a chapter in the content as well as an optional title, related URLs and so on. Table of content frames can list either "child" tables of content (which allows for hierarchical structures) or chapters. There also is a field to indicate whether the listed chapters are ordered, that is, to be treated as sequential and continuous.

Obsession No. 2 is actually a question: In Outlook 2003 we had a distribution list that was imported from another copy of Outlook. The problem is internal data architecture issues mean when you move a list from one machine to another you lose the individual list entries. And when you use these corrupted entries you get the terribly useful message "An unexpected error has occurred." You have to delete the offending distribution lists and recreate them.

But if you use the same name for the new distribution list the automatic name-checking feature will find the old distribution list details from some internal cache. This list in fact points to nothing so if you accept the entry and then try to send your message you'll get that unexpected error.

To get around this you have to go to the address book to use the new version of the distribution list. After that it seems the old version of the list is purged from this mysterious cache and automatic name completion will provide the new distribution list. Of course, there's a catch. When you restart Outlook the old cache appears to be reinstated.

So, our question is how do you either purge the old cached contents used by the automatic name-completion feature or force the updated cache contents to be flushed to disk to be used by automatic name completion when Outlook next starts?

Your answer on a virtual postcard to gearhead@gibbs.com and carpe Gibbsblog (www.networkworld.com/weblogs/gibbsblog/)!

CoolTools

Quick takes on high-tech toys. **Keith Shaw**

The scoop: FireStore FS-4 DV hard drive, by Focus, about $750

What it is: This is a FireWire hard drive that can be used to capture digital video (DV) direct from a video camera in uncompressed video formats, including Windows AVI, RawDV and QuickTime. This eliminates the need for tapes, and subsequently the need to capture video from tape to computer prior to editing. Editors can connect the FS-4 to a PC via a second FireWire port on the device and edit directly from the drive — there's no need to transfer the video to a local hard drive first. It comes with a 40G- or 80G-byte hard drive, and has a rechargeable lithium ion battery that lasts roughly 90 minutes. A professional version (about $300 to $500 more) of the FireStore FS-4 includes support for a few extra video formats.

The FireStore FS-4 saved us tons of time in our video shoots.

Why it's cool: We used the FireStore FS-4 to capture highlights of the recent DemoFall trade show. In the past this meant recording about 30 minutes of video to tape, then capturing the same 30 minutes from tape to PC (which is a real-time process), then start editing. With the FS-4, we just plugged it into our PC's FireWire port and started editing. The disk access even seemed faster than what we get with our local drive. In total, it cut down production time by at least an hour — key when you're trying to turn something around quickly.

Some caveats: The screen on the FireStore FS-4 can be hard to read in certain lighting conditions. And the myriad of menu options can be a bit confusing, especially when switching to PC hard-drive mode. It's not quite plug-and-play when it comes to PC connectivity.

Grade: ★★★★ (out of five)

The G7 Cordless Laser Mouse comes with two rechargeable batteries.

The scoop: G7 Cordless Laser Mouse, by Logitech, about $100

What it is: Designed for PC gamers and graphic artists who want extremely sensitive mousing abilities, the G7 Cordless Laser Mouse offers three settings (400, 800 or 2,000 dots per inch). The laser capabilities of the mouse will let you operate it on more surfaces (including glass) than an optical mouse.

The G7 mouse also includes a base station (connected to a PC via USB cable) that doubles as a battery-charging station. The mouse comes with two removable lithium ion batteries that you can pop right into the underside of the mouse.

Why it's cool: To modify an old cliché, once you laser mouse you'll never go back to optical. The control capabilities and the ability to mouse on any surface make this mouse a class above optical. In addition, the design of the mouse is extremely comfortable, cradling my hand much better than a regular mouse. Being able to switch resolution settings on the fly (through the "+" and "-" buttons on the mouse) was a fun feature, although we tended to stick to the resolution that creates little mouse/hand movement. Even cooler was being able to hot-swap the batteries — with our current laser mouse, we always forget to place it back into the recharging station until it's on fumes. At $100 this is a high-end mouse, but if you or someone you know does a lot of mousing, either through gaming or by the nature of their job, it's well worth the price for the accuracy and comfort that the G7 provides.

Grade: ★★★★½

Shaw can be reached at kshaw@nww.com. Multimedia Editor Jason Meserve contributed to this article.

IDC IT FORUM EXPO

IT-enabled Business Transformation: From Vision to Reality

JUNE 14-16, 2006 | SHERATON BOSTON HOTEL | **BOSTON, MA**

Great Change Means Greater Opportunity.

Are you Ready for your next Transformation?

ROBERT B. CARTER
Executive Vice President, CIO
FedEx Corp.

JIM COLLINS
Author & Management Educator

JOHN GANTZ
Chief Research Officer
IDC

Find strategic insight and high-impact solutions to your IT challenges with 7 dedicated tracks:

- > FINANCIAL SERVICES
- > HEALTHCARE
- > MANUFACTURING
- > SOLUTIONS FOR MAXIMIZING IT FLEXIBILITY AND RESPONSIVENESS
- > ALIGNING IT WITH BUSINESS OBJECTIVES
- > APPROACHES TO ENTERPRISE INFORMATION MANAGEMENT AND ACCESS
- > PRACTICAL APPLICATIONS OF NEW & EMERGING TECHNOLOGIES

Learn from the experts at the forefront of IT-enabled business transformation. They include senior IT & business executives from:

- Boston Scientific Corporation
- Children's Hospital of Denver
- Dole Foods, Inc.
- Franklin W. Olin College of Engineering
- Gannett Co.
- GE Real estate
- Harvard Medical School
- Hewlett Packard
- JP Morgan Chase
- Lexis Nexis
- Liberty Mutual
- NSTAR Electric & Gas
- Open Compliance & Ethics Group
- Preti Flaherty Heliveau & Haley LLP
- Quaker Chemical
- TriWest Healthcare Alliance
- United States Tennis Association (USTA)
- World Wildlife Fund

In-Depth Workshops on critical issues facing your enterprise:

- Roadmap to SOA implementation
- Things you should know before you implement Open Source
- Leadership/Negotiation
- Compliance

CIO SUMMIT

June 14 & 15, 2006

- Secrets of the New IT Organization
- A Case Study of a Successful CIO/CSO Partnership
- Documenting Business Performance
- The CIO's New Supply Chain
- The Future of the CIO Role

SPONSOR(S):

MEDIA & ASSOCIATION PARTNERS:

REGISTER NOW for special $695 conference rate available until October 31.
Call 800.605.5849. Visit www.idcITexpo.com for conference details.

IDC

Two industry insiders debate whether users are better off with smart or dumb networks.

FACE-OFF Are smart networks worth the investment?

Yes

Rob Redford
Cisco

Investments in smart networks quickly pay dividends across the company because the network is the single element that touches all the components of IT infrastructure. An intelligent network makes everything it touches more valuable.

Investing in built-in intelligent network features rather than bolt-on point products generates big returns on two fronts. First, you gain valuable capabilities to improve your business processes. Second, you reap vast economies of scale through network-wide IT resource sharing and virtualization.

The new capabilities derive from having functions embedded in the network that can intercommunicate and trigger desirable actions. Only by integrating functions into a holistic system that breaks down the barriers between isolated layers of the IT infrastructure can your IT system function in a way that is greater than the sum of its parts.

For example, application-layer intelligence enables business-activity monitoring that provides visibility into the processing of all transaction elements. A network with built-in application fluency can reconstruct a business object, parse its individual fields, and then log it, route it, transform it, or enforce business or security policy.

This ability to couple applications and network infrastructures will be fundamental as companies move to service-oriented architectures. For instance, a credit-monitoring process could be easily integrated with a purchase order processing function so that changes in a company's credit rating could immediately initiate a change in purchase order approval — without having to modify existing application software.

When information sharing, security, application and policy functions can be embedded in the network, a wide-ranging ROI follows. Whereas a dollar spent on a server buys only server resources, a dollar invested in the network for server virtualization, for example, buys more efficient server resources plus more efficient storage resources, lower application integration costs and lower IT operating costs. Server virtualization in the network enables a server switch to decompose integrated servers into resource pools of CPU, memory, I/O and storage. These resources then can be recomposed into virtual servers, thus allocating the right resources to each business function.

This capability is dynamic; a server failure or temperature alarm could trigger the network to take a server offline, reload a standby server in another rack with the correct image from the SAN, reconfigure the load balancer and bring this replacement virtual server back online.

Single-resource investments benefit a single aspect of the IT infrastructure, while a network-based investment benefits the whole. Intelligent features will make their way incrementally into corporate networks. As a strategic direction, though, companies should recognize that their network is their most flexible and extensible IT asset. It makes sense to hone it as the platform that will have the most profound affect on business processes.

Redford is vice president of product and technology marketing at Cisco. He can be reached at rredford@cisco.com.

No

Evan Kaplan
Aventail

Network intelligence as promoted by the large network vendors is the Star Wars defense system of our time — monolithic, vulnerable and inherently unreliable. Proponents of smart networks want to extend their hegemony by incorporating application performance and security into a unified, super-intelligent infrastructure. They want to integrate everything into the network and embed security into every node. In theory, you would then have centralized control and strong perimeter defense.

While on the surface this sounds reasonable, a deeper look reveals that this kind of approach presents significant risk for users and service providers. It runs counter to the clear trends in network communication, such as today's radical growth in broadband and wireless networks, and increased virtualization of corporate networks through use of public infrastructure. As a result of these trends, much network traffic is accessing corporate data centers from public networks rather than the private LAN, and the boundaries of the enterprise are expanding. Companies must grow by embracing these trends and fully leveraging public infrastructure and the power of the Internet.

Network vendors are right in recognizing and trying to address the two fundamental challenges of network communications: application performance and security. However, they are wrong in believing the best way to address these concerns is to integrate application performance and security into the underlying network.

The alternative is to avoid building increasing intelligence into the physical network, which I call the connectivity lane, and building it instead into a higher-level plane I call the intelligence plane.

The connectivity plane covers end-to-end network connectivity in its broadest sense, leveraging IPv4 and eventually IPv6. This plane's characteristics are packet-level performance and high availability. It is inherently insecure but incredibly resilient. The connectivity plane should be kept highly controlled and standardized, because it is heavy to manage and expensive to build and update. It should also be kept dumb, with change happening slowly.

Conversely, the intelligence plane is application centric and policy driven, and is an overlay to the connectivity plane. The intelligence plane is where you build relationships, security and policy, because it is flexible and cost effective. This plane is network independent, multi-vendor and adaptive, delivering applications and performance across a variety of environments, systems, users and devices. The intelligence plane allows you to extend the enterprise boundary using readily available public infrastructure. Many service and product vendors offer products that address the core issues of security and performance on the intelligence plane.

Connectivity vendors should focus their efforts on building faster, easier to manage and more reliable networks. Smart networks are good for vendors, not customers.

Kaplan is CEO of Aventail. He can be reached at evank@aventail.com.

nww.com

Have your say

What's your opinion? Log on to NetworkWorld.com and let us know. Face-off authors Rob Redford and Evan Kaplan will respond to your comments.

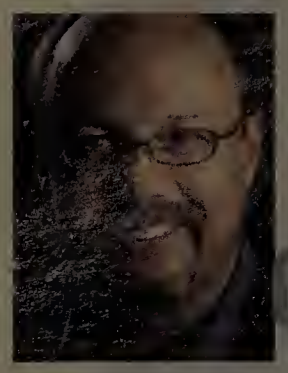
DocFinder: 9326

IS YOUR DATA'S VULNERABILITY KEEPING YOU UP AT NIGHT? IF IT ISN'T SECURED INSIDE THE PERIMETER, IT SHOULD.

If your data could talk, you'd get an earful. It would tell you that its value on the open market has sky-rocketed. And a data breach inside the perimeter might be just around the corner. If it happens, it could cost millions. Not to mention reputations. That's why there's EpiForce™ from Apani Networks™. It's built from the ground up to secure data inside the perimeter. No matter what platforms you use. That's good news for your enterprise. And a good night's sleep for you.

Apani™

To learn more about securing inside the network perimeter, get a free copy of "The Definitive Guide to Security Inside the Perimeter" from realtimepublishers.com, sponsored by Apani Networks. Go to www.apani.com/nwguide



On Technology
John Gallant

Managed security service providers prep for debate

For a growing number of customers, the best solution to the problem of network security is handing it off to someone else.

That's why managed security services are among the fastest-growing service offerings today. Customers are embracing them because the services free them from many security headaches, while at the same time reducing the strain on staff resources and investment in new equipment and software. Service providers love the services because they offer a new way to glean revenue and profits from the enterprise customers that are normally bashing them over the heads for rate cuts on voice and data products.

If you're considering outsourcing security to a service provider, then you won't want to miss the special session *Network World* will be hosting at the ComNet Summit in Washington, D.C., on Nov. 30 (www.comnetexpo.com). Our Managed Security Service Provider Showdown will bring together four leading security service providers in a presidential-style debate on technology, pricing, support, geographic reach — in short, all the key elements you'll need to examine in choosing a managed security service provider.

I'll be hosting this Showdown along with Forrester Research Analyst Paul Stamp, one of the leading experts in this marketplace. Stamp and I have selected companies that represent very different approaches to providing managed security services so attendees can get a better understanding of the range of solutions available.

We initially invited MCI, Symantec, Electronic Data Systems (EDS) and Counterpane Internet Security to take part in the debate. MCI and Counterpane quickly signed on and we're awaiting confirmation from EDS. Symantec, on the other hand, turned us down flat with no clear explanation of why it won't stand up with the other companies. So we invited Internet Security Systems to take Symantec's place and ISS grabbed the opportunity.

We'll ask the vendors questions about their offerings, and then we'll let these companies ask each other questions. The goal is to quickly drill down to the differences between companies to help buyers make better-informed decisions.

By hearing how these company executives answer questions about the security problems they handle, how they price and deliver services, and where they're headed for the future, you'll learn which company and philosophy is right for you.

Join us at this Showdown and let me know in advance which questions you'd like us to ask our debaters.

— John Gallant
Editorial director
jgallant@nww.com

Opinions

Keep it simple

Regarding "WMM addresses quality of service" (www.networkworld.com, DocFinder: 9325): Remember the strengths of the IP-stupid network vs. the legacy telco circuit-switched smart network. If your application has latency problems, isn't it better to rewrite (fix) your application, rather than rewrite (fix) your network?

Seems to me QoS adds a lot of complexity. The IP revolution is founded on KISS — Keep it simple, stupid.

Remember, the smart telco network gave us 128-parameter modems, and we had to wait for Hayes to set up a "standard 128 defaults" for modems. Let us not go back there.

Brandon Fouts
Senior systems engineer
Puget Sound Regional Council
Seattle

More IT truths

Regarding Mark Gibbs' BackSpin column: "The truth about IT" (DocFinder: 9326): I'm the technology coordinator for a K-12 school district (just over 1,100 students and 120 staff). I feel there are a couple of truths about IT that got left out, based on what I see in my own little world.

Truth No. 7: Users have unrealistic expectations of IT. All technology is expected to have 100% uptime, run at blazing speeds and do what the user wants it to do, not what the user told it to do. Going along with these unrealistic expectations are users who don't know what they have or what it does, but insist on needing better equipment — even though they don't use their current equipment to its potential.

Truth No. 8: Everything wrong is IT's fault. Lights flickered? IT's fault. Program had unexpected results? IT's fault. Coffee tastes too weak? The IT guy must have done something to that, too.

In some small part, I disagree with Gibbs' Truth No. 5 — I don't think security is a pipe dream. It's just that the more secure we make something, the more determined someone else is to hack it. Of course, you can't forget the users who will always figure out a way of goofing up your security — although usually it's by doing something with unintended results.

Jason Brabander
Hutchinson, Kan.

One of Mark Gibbs' "truths about IT" is that security is a pipe dream. I would amend that to say perfect security is a pipe dream, in IT as well as other areas of life. We want computers to be perfect while we are willing to accept that the risk of being killed on the freeway is very real. We can manage and reduce risk, but not eliminate it. Security itself becomes a problem if we try to remove all risk — like some people try to do with air travel — rather than manage and reduce it.

Gerald Edgar
Renton, Wash.

Hallelujah! Mark Gibbs' "The truth about IT" states what I have said for years. If I were collecting a salary and working only 30 hours a week, it would be called larceny. But if I work 50 hours for that same salary, I'm a "company man!" Being forced to go the extra mile is nothing more than institutional larceny.

David M. Babineau
West Boylston, Mass.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

NWW.COM Readers respond

Find out what readers are saying about these and other topics. **DocFinder: 1030**

USER VIEW

Chuck Yoke

The Ten Years Ago Blues — not!

In the song "Ten Years Ago," blues singer Buddy Guy laments, "Oh, I would like to go back 10 years." The thought of going back to 1995 is intriguing, as it was an interesting time in networking.

The 1995 networking world was vastly different than the one I support today. Instead of variations of Ethernet, my team had to support Ethernet, token-ring and bisynchronous networks. Our cabling infrastructure contained ThickNet and ThinNet coax cables, Type 1 shielded twisted-pair, Type 3 unshielded twisted-pair and twinax cabling. As part of our infrastructure support we installed the appropriate connectors, so our tool kits contained drills for ThickNet vampire taps, crimpers for RJ-45 connectors and channel locks for Type 1 connectors. We carried various punch-down tools, tone generators and yellow "banana probes" to support the phone connections.

In 1995, we migrated our WAN from bridge-based 56K bit/sec point-to-point connections to a router-based frame relay infrastructure. IP was far from ubiquitous and protocols such as DECnet, LAT, SNA, IPX and NetBEUI had to be supported. We needed to understand IP subnets, DECnet Level 1 and 2 routing, IPX SAP update parameters, LAT timers, and SNA LU and PU addressing to create the proper router configurations.

In 1995 there was little separation between WAN, LAN, server operating systems and desktop support. It was all network — so we supported it all. Windows NT was making headway in the server world, but OS/2 LAN Server held a larger market share and Novell was the acknowledged king of the network operating system. Desktops had to be configured to connect to NetBEUI-based NT and OS/2 servers, IPX-based Novell servers, SNA-based AS/400s and IP-based Internet access. We also had to support the marketing group that insisted on using Macintoshes running AppleTalk over LocalTalk. And there was the gray-suit techie wannabe who needed support for an application called Mosaic that accessed something called the World Wide Web. We knew that was going to be a waste of time.

Celebrating 10 years of **NetworkWorld. com.** Log on and tell us what you were doing a decade ago. **DocFinder: 9341.**

Plug and play was a new concept, so we manually created the appropriate config.sys and autoexec.bat files to load the correct drivers in the right order. Many of the desktops had multiple network interface cards that required us to configure dip switches to prevent memory or interrupt conflicts. We also supported modem banks for dial-in connections, so we had to understand V.32, V.32bis and V.34 to configure the various modem scripts.

Today, much has changed. IP and Ethernet have become ubiquitous. Microsoft won both the server and desktop wars. And the World Wide Web dominates Internet networking.

Vendors install all my cabling. I haven't seen a dip switch or modem bank in years. I have no idea where to find the config.sys and autoexec.bat files on my Windows XP laptop. The only banana I care about is in my lunch bag, and my memory conflicts are confined to misplaced car keys.

Sorry, Buddy, you may want to go back 10 years, but I think I'll stay right here.

Yoke is director of strategy and architecture for a global travel and real estate corporation. He can be reached at ckyoke@yahoo.com.

TELECOM CATALYST

Daniel Briere

Where's Walt Disney when you need him?

Unless you are a hard-core Disney buff like me, you probably don't know much about the origins of Disney World and the whole philosophy that Walt Disney was trying to bring to urban design. Disney's original Disneyland had a utilitarian role of providing a place where people could go and enjoy themselves when visiting his California studio. He loved the idea that you could take a physical space and transform it into something — such as an amusement park that shut out the real world — just as you could put a person in a darkened room and show a movie that transported him to a far-off land.

Disney became fascinated with the idea of building "spaces" and making people's lives less chaotic than they were. He loved World Fairs because of the future change they foretold. He lobbied to be a part of this by getting corporate sponsorships to show his vision. The Carousel of Progress ride at Disney World first appeared in the 1964 World Fair, where it was the GE-sponsored pavilion. The theme song, "There's a Great Big Beautiful Tomorrow," talked about how technology was going to change our lives.

But it was not just about technology for Disney -- it was about reinventing society. He was a passionate urban engineer, and his first big foray into urban redesign was to be a city called the Experimental Prototype Community of Tomorrow (EPCOT). EPCOT would be a perfect city, with dependable public transportation, underground utility access tunnels, a huge soaring civic center covered by an all-weather dome and model factory environments that would be concealed in green belts of grass and trees. Everything would be readily accessible to workers housed in idyllic suburban subdivisions nearby.

He was willing to put his money where his mind was. Disney was actually going to build a city of the future from the ground up. He purchased thousands of acres in central Florida for an "East Coast Disneyland," Walt Disney World. He made a film showcasing this new city (www.networkworld.com, DocFinder: 9324). Plans, models — everything was prepped and ready when Disney died in late 1966. EPCOT, where more than 20,000 people would live in a perfect city of tomorrow and model for urban change, died with him.

> We need our own 2005 EPCOT where we can reassert our technology leadership and vision.

Lacking Disney's passion, Disneyland East became another amusement park.

Fast forward to 2005 Korea. Korea is building its own city of tomorrow, New Songdo City, where everything is similarly designed in a utopian, centrally planned fashion. All major information systems share data, trash cans speak RFID and the baseline for communications is a high-definition videophone. More than 65,000 people will live and 300,000 people will work in this technological and social utopia of the future, dubbed a "ubiquitous city" or U-City for short. Expected to be complete in 2014, it's probably the largest urban development in the world, and the largest test bed for technology. It is supported by the government and built on top of a national broadband infrastructure that also is supported by the government. B. J. Fogg, the director of the Persuasive Technology Lab at Stanford University, says, "New Songdo sounds like it will be one big Petri dish for understanding how people want to use technology."

You have to give Korea credit for living the vision. It's doing what everyone else talks about: pushing the edges of technology's impact on society by building a society around technology. Imagine having an arena in which to design, test and then adopt such productivity and socially promoting capabilities.

A lot of these new-fangled ideas originate in the U.S., but there's no Petri dish for us to exploit, no regulation-free zone for experimenting on the masses of society. We need our own 2005 EPCOT where we can reassert our technology leadership and vision. We need a Walt Disney.

Instead, we have a government busy moving pieces around the telecommunications game board. Where are our national plans for an EPCOT 2014, our New Songdo City? I guess they're on the shelf, next to our national alternative energy strategy — in the TBD section.

Briere is CEO of TeleChoice, a market strategy consultancy for the telecom industry. He can be reached at telecomcatalyst@telechoice.com.

POOR RESPONSE

Kaiser Permanente • The Northern California HMO was fined $200,000 in August for failure to properly investigate and report a mistake that exposed a handful of patient lab records. Mary Henderson, vice president of IT compliance, was not able to determine who was responsible.

AFTER A SECURITY BREACH

Every network is vulnerable to some type of attack. The important thing is how you respond.

UC-Berkeley • When a laptop was stolen from the graduate department that contained personal information about 98,400 alumni, Shelton Waggener, director of central computing, launched an informational Web site, now emulated by other universities responding to data breaches.

POOR RESPONSE

CardSystems • Visa's vice president of risk management, John Shaughnessy, opted to pull the plug on payment card processor CardSystems after it violated card industry payment standards set ahead of time to prevent breaches such as the one that exposed 40 million cards in June.

University of Connecticut • Following the June 20 discovery of a rootkit on a system housing personal information on 72,000 employees, students and alumni, U-Conn CIO Michael Kerntke opened his data center to the media and explained to them, in plain English, the level of risk to the data on the compromised server.

BY DEBORAH RADCLIFF

The week he was promoted from acting to permanent CIO at the University of Connecticut, Michael Korntke had his mettle tested by the June 20 discovery of a rootkit on a system housing the names and Social Security numbers of 72,000 employees, students and alumni.

An investigation found that the rootkit, an attacker tool for compromising computer systems without detection, hadn't been touched since it was installed in October 2003. That made it highly unlikely personal records were ever copied off the server. Still, Korntke persuaded senior administration to err on the side of caution and go public with the breach.

The frenzy had finally died down that Friday, but at 7 p.m. as he neared his driveway in his Chevy Tahoe, he got another call from his public relations manager.

A CHANNEL 3 NEWS CREW WAS WAITING FOR HIM BACK AT THE DATA CENTER AND NEEDED HIM TO SHOW THEM AROUND.

"I never thought when I took this job that I'd be on TV," says Korntke, who not only kept his job despite the breach, but also earned accolades from school administrators for his ability to communicate the extent of the damage to a non-technical news audience and to be available for interviews at odd hours.

Facing the limelight is part of the way IT executives' jobs are getting more challenging as a result of new rules to report private data breaches. There's also the other work involved — the investigations, repairs and notifications arising from data breaches that expose personal information. In all, 80 such breaches went public between Feb. 15 and Sept. 29, according to the Privacy Rights Clearinghouse (see www.networkworld.com, DocFinder: 8239).

While IT executives don't seem to be losing their jobs over the rising number of publicly reported breaches, their companies are experiencing severe losses, starting with an exodus of customers and customer loyalty. According to a September survey of 10,000 adults conducted by the Ponemon Institute, a privacy research organization, 19% of respondents ended their relationships with companies reporting breaches, and 58% say they have lost trust.

Publicly held companies also suffer a 5% stock drop in the wake of such a disclosure, according to the 2003 study "The Economic Cost of Publicly Announced Information Security Breaches" published in the *Journal of Computer Security*. And the cost of informing affected parties also is expensive, ranging anywhere from $15 to $35 per victim, according to Jonathan Penn, principal analyst for identity and security at Forrester Research.

But organizations can reduce their overall losses by reporting breaches in a timely manner and offering whatever help they can to the affected parties, Penn says. On the other hand, organizations can compound their losses by covering up and delaying reporting, such as the case with ChoicePoint, whose stock dropped by 15% after fraud in its system exposed 145,000 credit identities in February. And health maintenance organization Kaiser Permanente was fined $200,000 in August for a three-month delay in reporting an exposure of patient data posted on a publicly accessible Web site used for help desk support.

Start with standards

The best response plan starts with documented compliance to security standards mandated by a particular industry. If a company hasn't met these standards and a breach occurs, the company faces regulatory action.

Failure to adhere to security best practices also could result in corporate liability in the advent of an exposure, as in the case of BJ's Wholesale Club, which faces $13 million in outstanding claims by credit card-issuing banks trying to retrieve the costs of fraudulent purchases tracked back to accounts copied out of BJ's systems. According to a Federal Trade Commission complaint, the retailer violated common security practices, including failing to encrypt data, holding data it shouldn't have and failing to take proper measures to prevent unauthorized access. In a written statement, BJ's responded that no conclusive evidence of a breach was found.

A similar violation of payment-card industry standards might force CardSystems Solutions out of business. In June, CardSystems reported that identity thieves had hacked into a database containing 40 million credit card numbers.

The company admitted the data had been improperly kept. As a result, CardSystems has lost two of its three biggest card associations — Visa and American Express — and is awaiting a verdict from MasterCard. According to Penn, Visa and American Express had legal reasons to pull the plug on CardSystems. If they hadn't, they also could be held liable, he says.

"We had no choice but to drop CardSystems as an approved processor," says John Shaughnessy, senior vice president of operations and risk management at Visa. "They were in clear violation of our payment-processing standards."

Not to mention the CardSystems blunder also cost the card associations and the issuing banks millions of dollars in reparation.

Determine the scope

For example, Visa investigators have spent numerous hours uncovering the scope of the damage for its issuing banks by monitoring for and tracking fraudulent transactions back to the CardSystems origination point, Shaughnessy says.

Shaughnessy also had the burden of supporting an outside FBI investigation into the criminal activity of the hacker, which is still ongoing. As such, he was required by the FBI to keep the breach under wraps so as not to scare off the attacker. But he lost the luxury of time when, on June 17, the story broke prematurely in the *Wall Street Journal*.

"It's important to have an emergency response plan in place ahead of time," Shaughnessy says. "You must be prepared to track down who's impacted, and already have in place who's responsible to do what, because when something like this happens, you don't want to think about what to do and who to contact under pressure."

In another case, involving a stolen laptop at the University of California at Berkeley in March that contained the unencrypted records on 98,400 alumni, the IT department coordinated the investigation with university police. But because the computer was being used to aggregate data from various sources around campus to analyze graduation rates, the problem was in reassembling the data in question, which took the graduate department several business days, according to Shelton Waggener, director of central computing at Berkeley.

"The policy challenge is substantial here, because this machine was in compliance with the latest patches and security updates. It wasn't hacked. It was ripped from its mooring," Waggener says. "We were also dealing with the functional owners of the laptop who were requesting the data, and trying to determine new policies around data storage and access so we could prevent this from happening again."

Waggener chose to investigate first, then inform his administration and begin the process of reporting. But if you're in a highly regulated industry, the impetus is to report first, investigate second.

"Laws are much more specific that you report imme-

ISABELLE CARDINAL

diately when it comes to exposure of patient health information," says Lynne Randolph, a spokeswoman for the California Department of Managed Healthcare (DMHC). The DMHC fined Kaiser Permanente in part because of the HMO's lag in reporting the security breach.

From the start, Kaiser thought it was doing the right thing by investigating the posting of patient information before reporting. And that investigation was plagued from the start, says Mary Henderson, vice president of IT compliance at Kaiser. The exposed data was pertinent only to the Northern California regional office, which didn't involve the central compliance office until after it conducted its own investigation. And the data in question — numbers identifying patients, and in four places real lab results embedded in sample troubleshooting forms — was nowhere to be found online.

"The No. 1 concern for us was to mitigate immediate damage to our customers," Henderson says. "So our first task was to sort through hundreds of pages of system documentation to see if there was any identifying patient data in the sample screen shots and reports embedded in training materials we use to help troubleshoot report help desk calls."

The only evidence to go on were copies of the noncompliant training pages posted on two mirror sites that linked to the blog of a former employee who had reported the violation to the Office of Civil Rights in January. So Kaiser also spent time contacting the hosting providers of the mirror sites to get the material taken down.

In the end, Henderson's team was never able to determine who was responsible for the posted data, so no jobs were lost over this. But the lack of evidence, including the timeline of the exposure, made Kaiser look bad enough for regulators to levy the fine.

Sound the alarm

Timely and rigorous notification is also critical in minimizing your losses, says Forrester's Penn, who urges compliance managers to go beyond legal requirements and include attempts to make the potential victim whole, such as offering credit monitoring when called for. According to the Ponemon survey, 52% of those receiving notifications of a privacy data breach thought the notice was difficult to understand, while 39% felt the message was not honest and believable.

Notification and reparation were the most difficult parts of the process, Berkeley's Waggener says.

For starters, he explains, the graduate student information dated to 1997, so it was hard to find most of the affected parties. Ultimately, his team was able to e-mail about one-third of affected alumni. Then the university began paper mailings and set up a Web site and a 24/7 call center to reach the rest.

For the first two weeks, call center lines lit up 1,000 times a day, Waggener says. Concerned alumni asked what this actually meant to them, how the data was used and what they could do about it. Blogs and e-mail threads referred to the breach. Much of the posts were full of misinformation, making clarity among call center operators even more important.

"We had to write scripts on the fly and update them constantly due to the misinformation floating around out there. Not to mention, the criminal investigation into the stolen laptop was still in motion," Waggener explains.

To quickly respond to the call traffic, Waggener's response team selected an outside call center, which escalated to in-house responders when needed. This is another thing he wished he could have done better. Setting up the call center during the emergency and without a negotiated contract was chaotic and costly.

So another lesson learned was to have a negotiated contract in place with a call center for emergencies like this, he says.

Improve operations

UC-Berkeley's ID Alert Web site outreach (DocFinder: 9322) also is another valuable tool Waggener plans to keep. Already, he says, a half a dozen other universities have requested permission to use Berkeley's ID Alert site for their own education.

Which is the final point IT managers make about recovering from a data breach: Learn from the experience, and use it to make improvements. Use the incident to re-educate and enforce data safety practices in all personnel, advises Kaiser's Henderson, who used the experience to get funding for Web site security audits and to start an encryption program for laptops.

Since its breach, the University of Connecticut has been examining ways to reduce its reliance on Social Security numbers for student identifiers. It's also been auditing servers that contain and transmit sensitive information, and implementing more stringent network and server access controls.

"You'll never have a risk-free environment, because there will always the human element," Henderson says.

So when the unforeseen happens, act responsibly. Investigate. Inform affected parties and properly disclose to your regulators. Then use it as a learning opportunity to enforce better practices and security standards."

Radcliff is a freelance writer in Northern California. She can be reached at deb@radcliff.com.

Plan for a smooth recovery

Predefined response programs should be implemented before a security incident occurs, say IT executives who have dealt with public breaches and exposures of identity and financial data. Some regulations mandate a predefined response plan, such as Section 501B of the Gramm-Leach Bliley Act.

Basic elements of any response plan should include:

1. Report the incident to regulators.
2. Investigate the scope of the breach and determine affected parties.
3. When criminal activity is suspected, do a forensics backup and report to law enforcement.
4. Coordinate with legal, executive and public relations teams. Brief them in plain English, so they can understand clearly and act accordingly. This is particularly important when dealing with the media.
5. Inform affected parties. Tell them what their risks are and how to protect themselves. Offer to monitor their credit when ID theft is suspected.
   - Directly contact those you can locate via e-mail and U.S. Postal Service.
   - Use the media to contact those you can't reach directly.
   - Set up a 24/7 call center, anticipate questions and give operators scripts and escalation procedures, updating scripts as needed.
   - Establish a Web site with helpful information, keep it current and provide tools to empower victims, such as contact information for adding alerts to credit reports. Refresh and update site as new information comes in.
6. Make necessary repairs to your systems; conduct system audits and use the experience to reinforce and train personnel handling sensitive data.

— Deborah Radcliff

nww.com

Quantifying the problem

Check the Privacy Rights Clearinghouse's chronology to learn what businesses have reported data breaches, the type of breach and the number of individuals affected.

DocFinder: 8839

It's 8am. Guess how many attacks hit your network last night.

Trust us, it's an unbelievable number.

But how do you get enterprise-class security without blowing your budget? SonicWALL® has the answer. We take state-of-the-art network security and make it simple, reliable and affordable. So you can feel secure.

Take our Unified Threat Management Solution. It's real network security that delivers intelligent, real-time protection against the most sophisticated new viruses, spyware and network attacks. It combines a powerful, deep packet inspection engine with a continuously updated database of the latest attack signatures. Comprehensive security in an affordable, usable package—that's the SonicWALL answer.

Take the guesswork out of network security. For more details on our Gateway Anti-Virus, Anti-Spyware, Intrusion Prevention and other threat management solutions visit **www.sonicwall.com/home/gav.asp** or call us at +1 888.557.6642.

The worldwide leader in Unified Threat Management is hiring. Visit www.sonicwall.com for details.

Around the clock, around the world, and around the Web–
SonicWALL is there for you.

SONICWALL

Gateway Anti-Virus ▪ Anti-Spyware ▪ Intrusion Prevention ▪ Content Security ▪ Secure Wireless ▪ SSL-VPN ▪ Firewall ▪ VPN

THE NEW GLOBAL VILLAGE.

COURTESY: THE WORLD'S LARGEST, WHOLLY-OWNED, CONVERGED, GLOBAL IP NETWORK.

"Based on the 2005 Yankee Group Global Network Strategies Survey, U.S.-based enterprise users of global data and IP services have ranked Global Crossing number one in service reliability and price — demonstrating Global Crossing's price/performance capabilities, delivering the value which enterprises are seeking from a global service provider."

Paris Burstyn, Telecom Strategies North America, The Yankee Group

---

Reserve your place at the absolute center of a new, instantly accessible world of frictionless commerce. A world we pioneered. Over a single IP connection, all your business applications can be seamlessly converged and totally secured over Global Crossing IP VPN, VoIP, iVideoconferencing™ services. Over a single IP connection, you are moments away from your offices, your sales staff, your partners and anywhere in the world managed by engineers and support staff who understand what customers need. And you can have this new, accessible world without changing a thing in the infrastructure you have in place now. Sound too perfect to be true? Ask the 40% of the FORTUNE 500® companies we're doing business with today. The new global village. It's time you moved in. For more detailed information, point your browser to globalcrossing.com.

Global Crossing®

One planet. One network.™ Infinite possibilities.

CLEAR CHOICE TEST Storage

Storage options abound in the SMB-based NAS market

BY JAMES GASKIN, NETWORK WORLD LAB ALLIANCE

The market for network-attached storage devices aimed at small or midsize businesses suddenly offers some real choices with a range of features. No longer are these devices just "boxes of disks" with little differentiation. Companies can choose units for size, data redundancy, innovative back-up options, a do-it-all network unit or a combination of these features.

We recently tested four devices — Anthology Solutions' Yellow Machine (the all-in-one unit), Infrant Technologies ReadyNAS 600, Iomega's 200d with REV drive and Netgear's Storage Central SC101. Newcomer Infrant delivered a great product that performs well and provides a complete management utility, and wins a Clear Choice Award.

Infrant ReadyNAS 600

Infrant has a low public profile, but its ReadyNAS 600 box greatly impressed us. Offering several RAID options, the ReadyNAS forgoes the sleek and polished look of Buffalo Technologies' TeraStation (www.networkworld.com, DocFinder: 9323) for a business-like squat black box with a fan grill above the hard drive LEDs.

The ReadyNAS acts like an older-model NAS and works quite well when just plugged into the wall and connected to the network. The default settings give everyone access under standard Windows networking rules (\\ReadyNAS\Backup and \Media are preconfigured). The four 232G-byte drives in our test unit (see How we did it, DocFinder: 9325) were arranged as RAID-5, which left about 650G bytes of free space (subtracting the RAID overhead and space set aside for folder Snapshots).

It may look like a plain black box, but Infrant's ReadyNAS 600 impressed us with its complete management utility.

During the installation, the device downloaded a firmware update, installed it automatically and returned to the same browser screen administration page. This was the smoothest upgrade of the devices we tested. The system even sent us an e-mail stating that the newly upgraded box needed a reboot.

Security settings will cover small, medium and large network customers. For small groups, share-level security, with or without passwords, is recommended. Midsize groups can use individual user passwords per share, or group accounts. If you have a Windows domain controller or Active Directory, the ReadyNAS relies on those services for user authentication.

The management utility, FrontView, offers a setup Wizard and advanced configuration settings. The utility is a standard left-menu, tabbed-page-on-the-right layout, but at least Infrant didn't get cutesy with graphics. Pages have clear markings, and its clean presentation didn't attract attention to itself and distract us.

Genie Backup Manager Version 5.0 shipped with our test unit, but Version 6.0 now ships. It worked quickly and reliably.

A journaling file system (the embedded Linux-based operating system distribution isn't revealed) includes disk-write cache by default. The Gigabit Ethernet port supports Jumbo Frames, which is handy if other devices also support this protocol. You can optimize performance for Apple OS X clients, but that will lock out Windows clients. Because Apple-only shops don't have many cost-effective NAS options, the ReadyNAS may make some inroads there.

E-mail alerts can be sent to up to three addresses, with system events such as disk failure, quota violation, low disk space and even improper shutdown. ReadyNAS includes step-by-step instructions on how to perform a file system check in the e-mail sent after an improper shutdown.

Logs (system status and health) contained a nice balance of useful information without overload. One click e-mails a log page, and the system sends an exact HTML copy in the e-mail. The administrative browser utility also shows green, yellow and red lights in the bottom status line for the volume, individual disks, fan, power, temperatures and status of any attached UPS devices, giving users a quick glance of the system status.

To replace hard drives you have to take the case apart, and drives are not hot swappable. RAID 0, 1 and 5 are supported, and you can vary the file system access list by network share. Common Internet File System/Server Message Block for Windows starts by default, AppleTalk File Protocol, Network File System Version 2 and 3, HTTP, Secure-HTTP and anonymous FTP can be included. Also supported is Rsync, a back-up protocol used by Linux and Unix. Streaming from the media shared folder supports networked DVD and media players, with options such as showing a slide show or setting the pixel rate (480i/480p, 720p or 1080i) for the targeted display.

The ReadyNAS has a solid block of features with a complete and no-nonsense management utility. But the device also is fun for streaming music and watching the various disk LEDs dance along as the stored music files unwind across the striped disk array.

Yellow Machine P400T

Those who love putting everything in one basket will adore the Yellow Machine, from Anthology Solutions. This taxicab yellow NAS box also adds router and firewall features to its resume, and it does everything fairly well.

The Yellow Machine provides router and firewall features in an all-in-one setup.

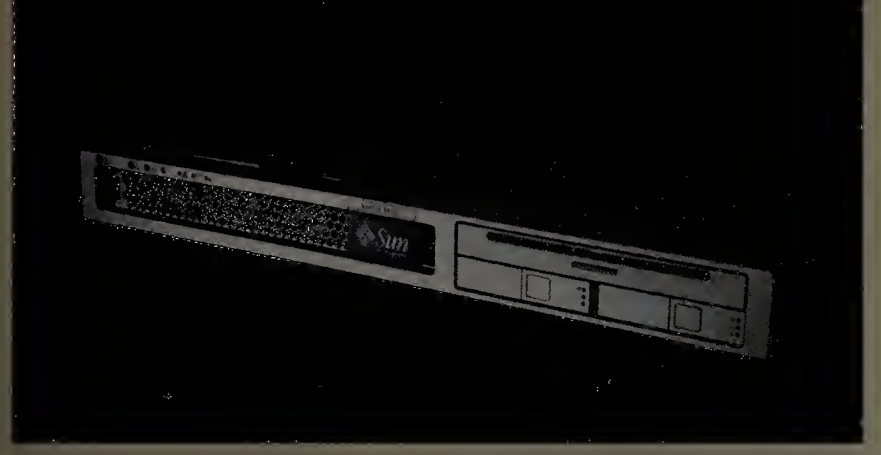
You may blanche at the idea of making your file server your router/firewall, but it has been done before by Tritton (DocFinder: 9324) and IOGear Boss, and can be handy for certain situations. Anthology updated this idea, and the Yellow Machine shoebox-sized unit comes stuffed with four hard disks (up to 2T bytes of total storage). Eight LAN ports in the back make this a router/hub, the security features provide a firewall, and the WAN port connects to your broadband modem.

Befitting a box that wants to be the center of your network, installation requires plugging a PC directly into the Yellow Machine. A storage-only mode turns off the router/firewall features, but the eight LAN ports will still work. Turning on the router/firewall takes no more effort than any other small-business router, and it connected quickly to our Yahoo-SBC DSL modem, providing Internet access within minutes.

Anthology says the Yellow Machine has a double firewall, but that is really a proxy server for maximum control over

See Storage, page 52


SUN FIRE X4100
SERVER OF THE MONTH
Sun Fire
XOXO
sun.com/sweetdreams



SERVER DATA SHEET

NAME: Sun Fire™ X4100

BORN: September 12, 2005

HOMETOWN: Menlo Park, CA

MEASUREMENTS: 1.69"H x 16.75"W x 24.28"D (I'm petite and powerful, with plenty of room for cables.)

I LOVE: Naughty ROI talk, multiple platforms, dimly lit data centers.

RUINS THE MOOD: Energy hogs, high-maintenance technology, big and nasty servers.

MY FAVORITE BODY PART: Definitely my Dual-Core AMD Opteron™ processor. It gives me the uncontrollable desire to run Solaris™ (my fave), Linux, Windows and Java™ at record-breaking speeds.

THE DIRT ON ME: I have quite the reputation for being fast. Not to brag, but I'm over 70% faster than the competing Xeon server.[1]

ACCOMPLISHMENTS: Let's just say I know what I'm doing in the data center. Performance tests prove I can take on twice the work with half the servers. Not bad for a server starting at $2,195.

MY IDEA OF A GOOD TIME: Working my dual-processor magic to provide 56% power savings over Xeon.[2]

AMBITIONS: I'd like to eliminate boundaries and create a better world where everyone can truly collaborate. Oh, and swim with dolphins.

WORDS TO LIVE BY: Silicon, not silicone.

My active lifestyle helps me really appreciate nature. That's why I'm into conserving energy.

I'm not afraid to show off the goods and prove that beauty is more than satin aluminum skin deep.

Sun microsystems

solaris

Java POWERED

AMD 64 Opteron

share

[1] The comparison is based on SPECfp_rate2000 benchmark. SPEC and the benchmark name SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. Competitive benchmark results reflect data published as of 08/23/05. For the latest benchmark results, visit http://www.spec.org/. The Sun Fire X4100 server (2xAMD Opteron processors Model 254, Solaris 10): SPECfp_rate2000 - 53.8. The Dell PowerEdge 1850 (2xIntel Xeon 3.6 GHz, MS Windows): SPECfp_rate2000 - 31.4. Sun's results were submitted to SPEC.

[2] It takes 60% less power to drive one Dual-Core AMD Opteron processor than the two Intel Xeon MP processors required to provide the same amount of CPU core resources.

Storage,
continued from page 47

data flowing through the box. System security choices are NAS only, router, firewall and proxy. In NAS mode, the system follows standard Windows networking security settings. Router mode offers no security beyond standard network address translation, similar to other low-end routers. Firewall mode adds a basic stateful packet inspection feature. Proxy mode tracks and stops a wide variety of incoming and outgoing traffic, including Web access to unregistered users. It also records all e-mail traffic and blocks Web mail access. Individual PC profiles can be modified to allow such traffic, and port forwarding supports external system access or online games (if used in a home environment).

RAID 5 is the default, although RAID 0 and 1 are supported. RAID support cuts the available disk space down from 1T byte to 680G bytes, but using four 500G-byte disks will boost the capacity to 2T bytes (for usable space of about 1.5T bytes)

We would have preferred to see a Gigabit Ethernet port on the box, but we were OK with the eight 10/100M bit/sec LAN ports (and the WAN port). The Yellow Machine Manager administration utility worked with Firefox (but just barely) and Internet Explorer 6.0 or above is supported.

Cleverly, the Yellow Machine offers client backups from the NAS. To do this, we created a user and back-up folder, and told the device which shared client folders to back up and set a schedule. No client software was supported, but we had to go to the Yellow Machine's file system for file restoration, the flip side of having no client software.

Configuring a Yellow Machine for a remote office or portable LAN hub would leverage the all-in-one nature. One unit to configure for file storage, network access and security makes sense for project teams traveling to another site, for example. Just plop the box in a room, connect some cables to laptops and you have an instant network.

NetResults

Product	ReadyNAS 600	Yellow Machine	200d with REV drive included	Storage Central SC101
Vendor	**Infrant Technologies** www.infrant.com	**Anthology Solutions** www.anthologysolutions.com	**Iomega** www.iomega.com	**Netgear** www.netgear.com
Price	640G bytes, **$1,400;** 1T byte, **$1,600;** 1.6T bytes, **$2,400.** NETWORKWORLD CLEAR CHOICE	Suggested retail pricing on the 1T byte appliance is **$1,300,** and pricing for the 1.6T byte machine is **$2,000.**	320G bytes, **$1,400;** 480G bytes, **$2,000.**	**$125** without hard drives; hard drives sold separately.
Pros	Clean administration; flexible; supports every client around. Lose some ease of use with the increased flexibility.	Complete network in one yellow box; server-based backup.	Easy Windows network integration, REV drive for backup.	Small, silent, new technology.
Cons	Not sexy, just solid.	Single point of failure for entire network.	Highest cost per gigabyte of all tested units (but price includes REV drive removable storage backup feature.)	Client installation problems; advantages don't fit target market.
Score	**4.5**	**4.1**	**3.9**	**3.45**

The Breakdown	Infrant	Anthology	Iomega	Netgear
Management **25%**	5	4	4	3
Capacity/value **25%**	4	4	3	4
Backup **15%**	4	4	5	3
Installation **15%**	5	4	4	3
Documentation **10%**	4	4	4	3
Features **10%**	5	5	4	5
Total score	**4.5**	**4.1**	**3.9**	**3.45**

Scoring Key: 5: Exceptional; **4:** Very good; **3:** Average; **2:** Below average; **1:** Subpar or not available

Iomega 200d

One of the leading storage vendors, Iomega makes NAS units that range across the SMB landscape. The makers of the Bernoulli Box and Zip disk have leveraged its REV high-capacity, small removable hard disk cartridges in an interesting way.

The 200d we tested included a REV drive and cartridge. A REV cartridge holds 35G bytes native, and up to 90G bytes of compressed data, and is small enough to lose in a briefcase. Iomega now positions REV disks against tape drives for large back-up jobs, because the REV cartridges cost the same or less than many tape cartridges, yet read and write data much faster. Data can be read or written between NAS disks and the REV drive anytime, in any direction.

Iomega's 200d offers removable cartridges for offsite data storage.

Unlike the customized Linux OS, the 200d runs on Windows Storage Server 2003 software. Iomega says the Web-based administration pages work well until they dump you into Windows through a Remote Terminal connection, and the management interface changes completely. Users can be read from domain controllers or Active Directory, a nice inducement for Windows shops to go with Iomega. Windows brings with it the Shadow Copies feature for unit storage backup. Windows, Macintosh, Linux/Unix and Novell clients are supported.

The 200d's case is quiet enough for office use and a door hides the two removable hard disks (not hot swappable) and a REV drive. Four USB 2.0 ports that can add extra REV drives and a print server finish the package. The box also can send status and alert e-mails.

Our unit had three removable disk slots with two hard disks (for 320G-bytes total) in a RAID 1 configuration (mirrored). The third slot held the REV drive.

Backup is covered through bundled software from Computer Associates (BrightStore ARCserve) as well as Iomega's Automatic Backup Pro application. We used Automatic Backup Pro to write out files after each change, or scheduled clients to a schedule. In a market where some vendors forget about backup, this was a nice touch.

The Windows operating system includes File and Print Services for NetWare (FPNW). Because Microsoft and Iomega don't include their own Novell-like client for access, they force you to violate the license on real Novell client software to use FPNW.

Business-ready and solid, the 200d offers removable data cartridges for offsite data storage, something new in this market. Yet the price tag puts it at the high end in terms of dollars per gigabyte. Companies with Windows servers might pay the price for easy integration and the REV cartridge backup. Before rejecting this model, however, price tape drives with 35G bytes (or more) of storage capacity to see if the device is more easily justified.

Storage Central SC101

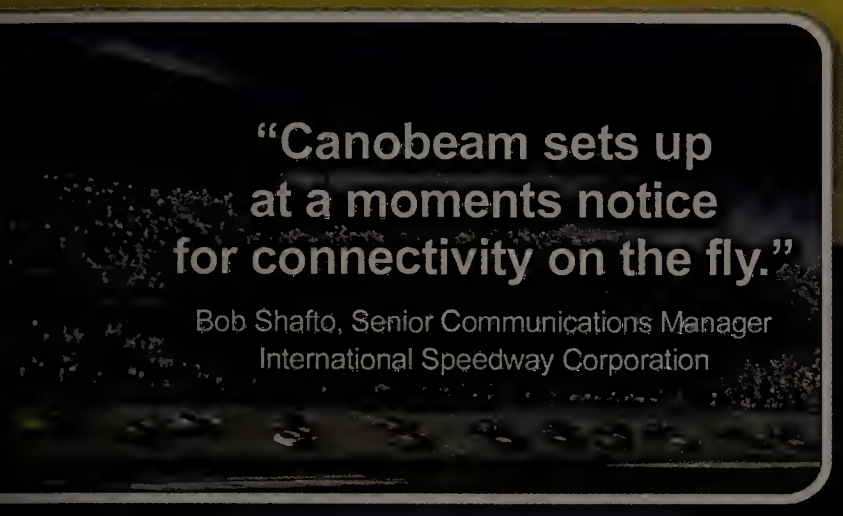
We were frustrated by the Netgear Storage Central SC101, from Netgear by way of Zetera's block-based storage-area network (SAN) technology that gets the price under most NAS boxes. Although the hardware looks great and works well when finally installed, the square SAN peg pounded into the round hole of the home and small-business market pushes technology into a market that doesn't need it.

The unit comes without hard drives, turning this into a do-it-yourself project from the start (our unit came with two 120G-byte hard drives already installed). Second, only Windows XP (with Service Pack 2) or Win 2000 (with Service Pack 4) systems can play, because SAN drivers must be loaded onto each client PC for it to interact with the SC101. The management interaction occurs through the client software, because there's no browser-based administration utility. Users must work with disk drives identified by their IP address, although renaming the drives isn't hard once you get into the advanced configuration options. The unit is not visible in Windows networking utilities such as My Network Places, as well as Linux or Macintosh systems. Finally, limited ability to manage the drives created for each user compounds the concern of seeing what appears to be conflicting drive information in different administration screens.

But the unit looks great. Smaller than a toaster, the SC101 has an aluminum top with a fin design that doubles as a heat radiator for the two drives. Three LEDs (power, network and disk activity) and a large screw that accesses the case

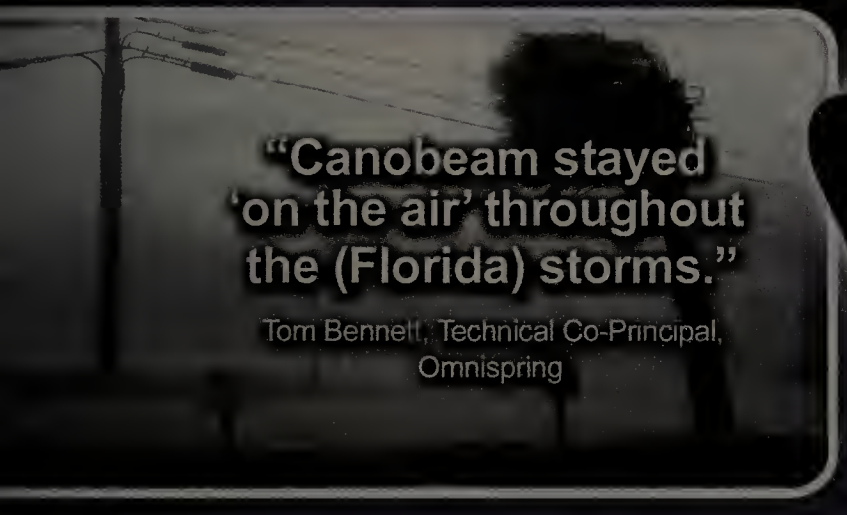
See Storage, page 54

The Free Space Optics everyone is talking about.



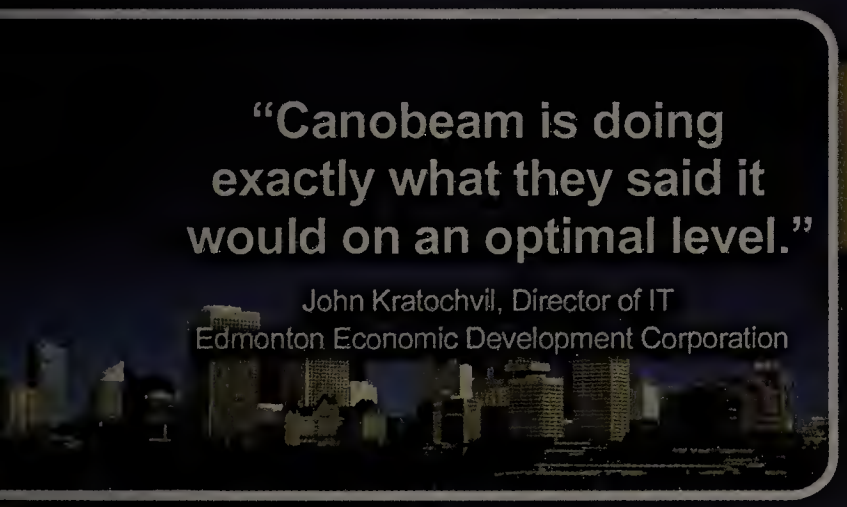
"Canobeam sets up at a moments notice for connectivity on the fly."

Bob Shafto, Senior Communications Manager
International Speedway Corporation



"Canobeam stayed 'on the air' throughout the (Florida) storms."

Tom Bennett, Technical Co-Principal,
Omnispring



"Canobeam is doing exactly what they said it would on an optimal level."

John Kratochvil, Director of IT
Edmonton Economic Development Corporation

AutoTracking Built-in to All Models, GigE Speed and Affordability Connects With More Users.

DT-110	DT-120	DT-130
▸ Data speeds from 25Mbps to 156Mbps	▸ Data speeds from 25Mbps to 156Mbps	▸ Data speed at 1.25Gbps for Gigabit Ethernet
▸ Data transmission from 20m to 500m	▸ Data transmission from 100m to 2km	▸ Data transmission from 100m to 1000m

CANOBEAM

More and more users are discovering the benefits of Canobeam FSO wireless transmission for primary or redundant applications. They include a broad base of users from commercial Internet providers maintaining the integrity of their networks, to office campuses where installing fiber between buildings is cost-prohibitive, to race tracks where fast data access needs can't be met with traditional fiber installations. In those applications and many more, Canobeam DT-100 Series units feature the speed, dependability and AutoTracking requirements that provide the perfect solution for more and more users.

Find out more at canobeam.com

1-800-321-4388 (Canada: 905-795-2012)

Canon KNOW HOW®

Storage,
continued from page 52

adorn the front of the box.

Intolerant of most personal firewalls, the client software uses specialized SAN drivers to communicate with the SC101. During client installation, it took many steps to establish communications, but it did map a logical drive letter to the SC101 unit. Netgear makes a big deal about this method of drive mapping, but every other NAS we've tried works fine with the "My Network Places > Tools > Map Network Drive" option that provides essentially the same results.

Only two of our three test PCs could successfully run the Netgear client software. The primary test PC, an Advanced Micro Devices-based unit with 734M bytes of RAM, could run the client software but couldn't connect to the SC101. We failed to create a new drive share with this PC, but the drive name would appear on the SC101 "available drives" list even after the failure messages. Unfortunately, we could never attach the drive and use the storage unit with our first PC. The other two PCs (an XP Professional desktop, and a Pentium III laptop running Win 2000 and connected wirelessly), could both attach drives and properly configure the unit.

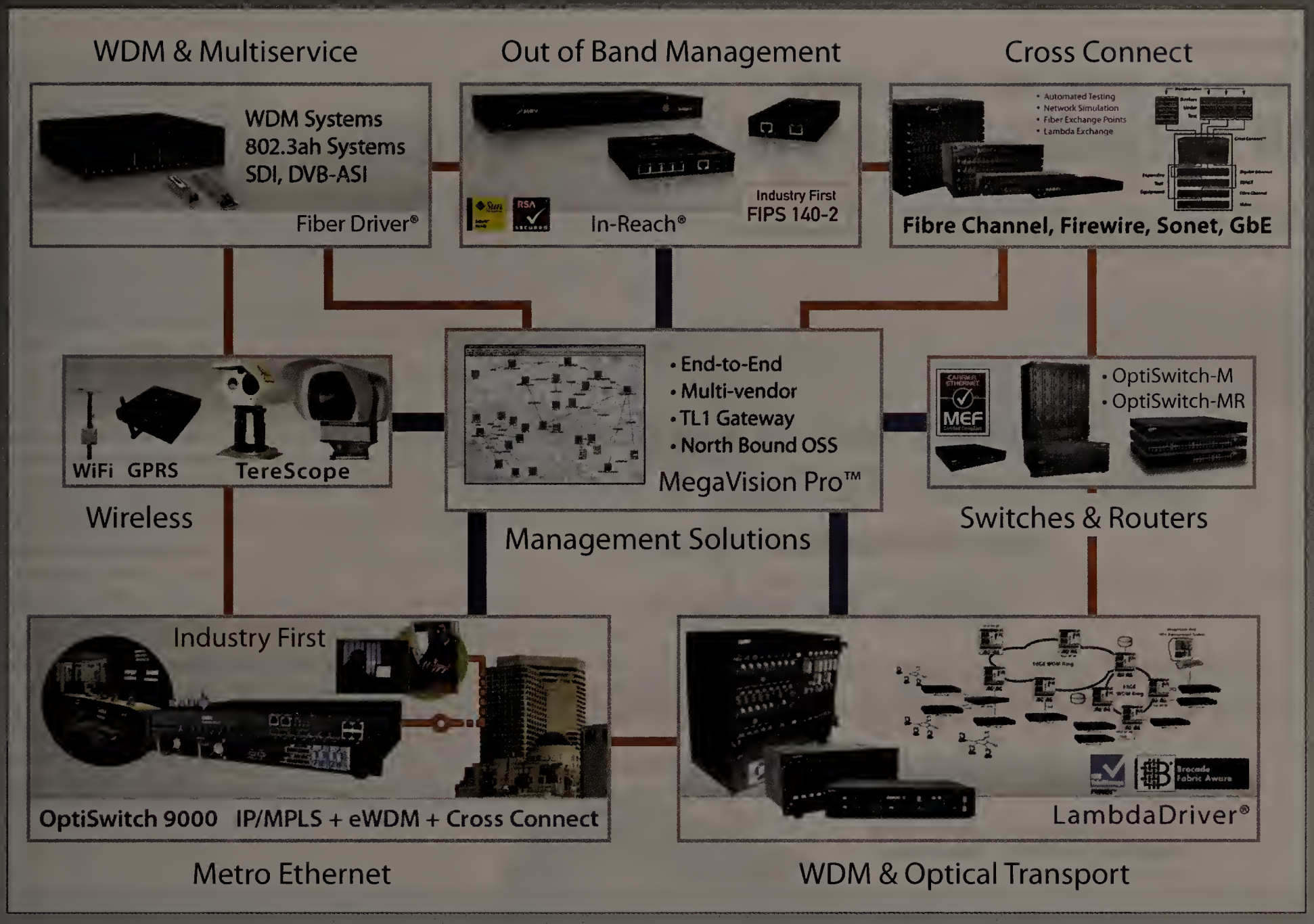
Client PCs carve some of the available disk space into a drive that can be made private or public, password protected or not, and mirrored or not. If the drive is public, other users can attach to that drive, and it effectively becomes a local hard disk. The drive letter assigned by the installation process is the next available letter on the PC. Detaching an assigned drive on the SC101 deletes the space and contents after warnings. Drive spaces not created completely by our third PC were immune to attempts to manage directly and delete, making it appear as if the allocated space was unreachable, when it was available.

Installation issues plagued the Netgear SC101.

Once installed properly, the SC101 worked well. The advantages of SAN technology don't appear with a single storage unit, however. For high-end home users, video streams well from the unit, but not noticeably better than from other units we tested. But the small unit is silent, and silence alone should be enough for audiophiles to make this their storage choice. Putting two 500G-byte drives in this case creates a tiny terabyte of silent storage.

For a midsize or larger network, the value of the IP-driven, switchless SAN technology can be realized. Mirroring drives between two separate physical devices is no problem. Mirror them through a WAN link to another location is possible, creating a valuable data redundancy feature. Netgear has a nice line of network equipment for midsize companies, and the technology of the Storage Central device will make a bigger splash in that market than in a home or small office setting.

Gaskin can be reached at readers@gaskin.com.



Why MRV? MRV provides Innovative Service Aware Networking Technologies for carriers and enterprises. MRV's comprehensive solutions comprise of IP/MPLS/VPLS switching and routing intelligence, combined with WDM, Optical transport, Wireless, and Cross Connect services. MRV's networking solutions are managed by MegaVision® Pro™, a multi-vendor, end-to-end advanced NMS, and InReach® the most secure, FIPS 140-2, Out-of-Band networking solution for infrastructure access and control. MRV Operates seven R&D centers in the US, Europe, and the Far-East, along with 50 customer service and support centers, in 23 countries around the world.

Switches & Routers **OptiSwitch-M®** Modular. IP/MPLS/VPLS, BGP, VPNs. **OptiSwitch-MR®** Fixed, 40Gb stacking. L2/L3 POE, 8 10GbE ports in 1U

Metro Ethernet **Fiber Driver®** 802.3ah demarcation **OSM207** MPLS/VPLS, L2/L3, EPL, ELAN & EVPL **OS9000** IP/MPLS aggregation, QoS

WDM **LambdaDriver®** DWDM/CWDM/OADM, up to 10Gb, Storage, PE-Line, PE-LAN **Fiber Driver®** Multi-Service, WDM, 802.3ah, SDI, DVB-ASI

WDM & Metro **OS9000** Integration of eWDM with Cross Connect services & iP/MPLS intelligence, CWDM/DWDM/OADM provisioning, QoS, OAM

Out of Band **InReach®** More serial console ports shipped than all of our competitors combined. Most secure serial console mgmt. FIPS 140-2

Cross Connect Highest port density, 288 ports in 9U, currently used by major vendors & carriers for automated testing, extensive scripting

Wireless The market leader in FSO technology with over 6,500 links deployed. **TereScope®** Advantage high bandwidth, secure transmission

Management **MegaVision® Pro™** End-to-end, multi-vendor, TL1 & XML Gateway & North Bound **InReach®** Most secure out of band management

Now Hiring

MRV Communications is currently expanding our Worldwide Sales Operations with 29 New Positions available In North America and Europe.

MRV

Service Aware Networking Technologies™

Please visit us at www.mrv.com/nww or call us at 1-800-338-5316

E-MAIL NEWSLETTER SHOWCASE: WIDE-AREA NETWORKING

WAN optimization helps speed up data replication

BY STEVE TAYLOR AND JIM METZLER

CitiStreet saved money and complied with regulatory requirements with WAN optimizations.

CitiStreet is one of the largest global benefits delivery firms in the U.S. It serves more than 10 million participants and administers more than $200 billion of assets. CitiStreet administers the records of 9 million-plus subscribers.

CitiStreet's CIO Barry Strasnick says to ensure the highest levels of availability for the company's clients, CitiStreet replicates 6G bytes of data daily. This data must be encrypted before it can transit the WAN.

The problem CitiStreet faced was multi-faceted. Part of the problem was CitiStreet's daily data replication, which was taking 55 minutes per day, was likely to increase in the time it took as CitiStreet added customers. Its existing approach to encryption consumed a significant amount of CPU cycles on its servers. If it did not find a way to reduce the amount of time it took to do secure data replication, it would be forced to increase the capacity of the WAN by purchasing additional bandwidth.

Strasnick says it is difficult to find a solution that can do a good job of compression and implement encryption.

He deployed a new session layer (Layer 5) technology that combines the functionality of WAN optimization, application acceleration and data encryption in one appliance. The technology employs Layer 4 WAN optimization techniques to maximize the throughput of the network while using Layer 7 application acceleration techniques to speed the data replication. The appliances, which are deployed symmetrically at both ends of the link, also provide data encryption.

CitiStreet opted to implement Swan Labs' WANJet appliance, and so far, CitiStreet has been impressed with the results.

According to Strasnick, the time it takes to do data replication has been reduced from 55 minutes to 9 minutes. This has enabled CitiStreet to grow its customer base significantly without having to increase the capacity of its WAN by purchasing costly additional lines.

Taylor is president of Distributed Networking Associates and publisher/editor-in-chief of Webtorials. Metzler is vice president of tech consulting company Ashton, Metzler & Associates. They can be reached at taylor@webtorials.com and jim@ashtonmetzler.com.

NETWORKWORLD®

Servers
E-mail Newsletter


Gartner analyst shares server insight Reader - Message (Plain Text)

File Edit View Insert Format Tools Actions Help

From: Network World on Servers
To: Reader
Subject: Gartner analyst shares server insight

Gartner analyst shares server insight

By Deni Conners

Gartner's Jeffrey Hewitt gives his take on servers, Linux

At the recent Gartner PlanetStorage conference in Lake Buena Vista, Fla., principal analyst Jeffrey Hewitt made several interesting points about Linux and servers.

Among the drivers in the server market is economic growth; healthy economies demand server technologies. The growth of the Internet, cell phones, PDAs and smart phones has also driven server growth, as servers are needed to support the back-end infrastructure for these technologies.

.....

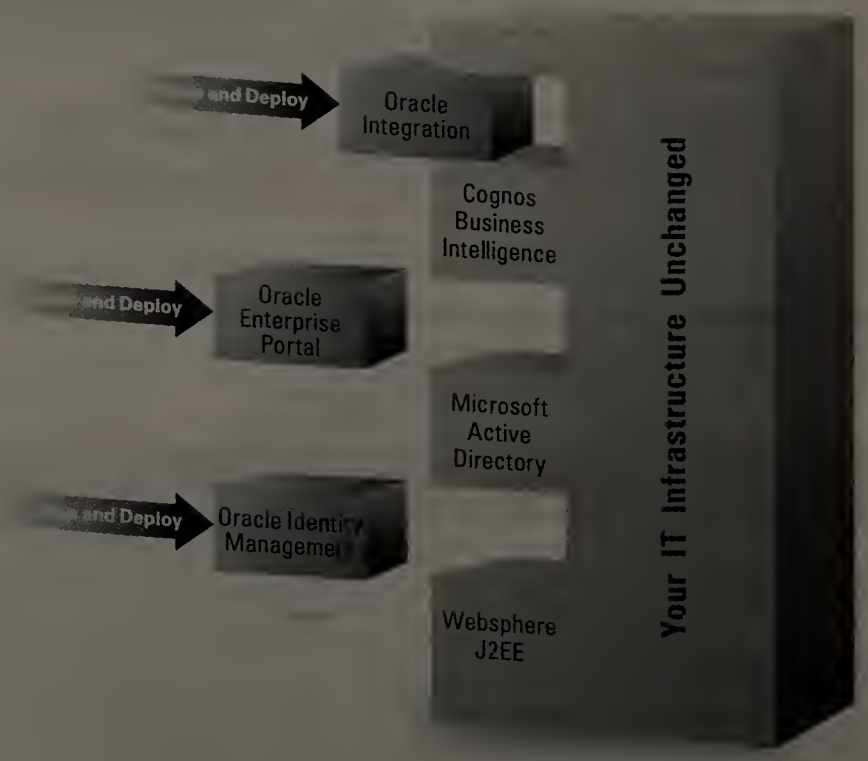
Sponsored by
Rose Electronics

Find this article at
www.networkworld.com/go/servers.html

For other great newsletter topics, go to
www.networkworld.com/go/nt1024.html

Oracle Fusion Middleware

Hot-Pluggable



So Standard, It's Hot-Pluggable With Your Existing Software

J2EE — Enterprise Portal — Identity Management — Integration — Data Hub — Business Intelligence

ORACLE®

oracle.com/middleware
or call 1.800.ORACLE1

NETWORKWORLD

Editorial supplement

October 24, 2005

The New Data Center

6th in a six-part series

Piecing together the next-generation IT architecture

SPOTLIGHT ON OUTSOURCING

A guide to outsourcing, new-data-center style. Inside you'll find:

- Options from leading outsourcers
- Tips from IT execs
- Five critical questions to ask prospective partners

Plus: Best picks of new data center products, and more.

THE ONLY WAY TO DO BUSINESS OUT OF THE OFFICE IS WITH MULTIPLE MOBILE DEVICES.

FACT #91:

AVAYA IP TELEPHONY GIVES YOU SINGLE-DEVICE MOBILITY, LIKE E-MAIL ON YOUR CELL PHONE.

AVAYA

COMMUNICATIONS
AT THE HEART OF BUSINESS

GET YOUR FREE COPY OF "MOBILE WORKFORCE FOR DUMMIES" AT AVAYA.COM/DUMMIES

The New Data Center

6th in a six-part series

Piecing together the next-generation IT architecture

SPOTLIGHT ON OUTSOURCING

Senior Editor: Beth Schultz
Editorial Director: Julie Sort
Senior Editors: Brian Fonseca, Steve Sauer
Design Director: Eric Anderson
Staff Writers: Kyle Chambers, Ryan Francis
Network World Editorial Director: John Gallant
Network World Copy Chief: John Dix

A view of the other pieces in the 2005 New Data Center series:

Outsourcers extend a new-data-center hand

To win your business, outsourcers are offering a host of options for your utility infrastructure.

DAN PAGE

BY MARY BRANDEL

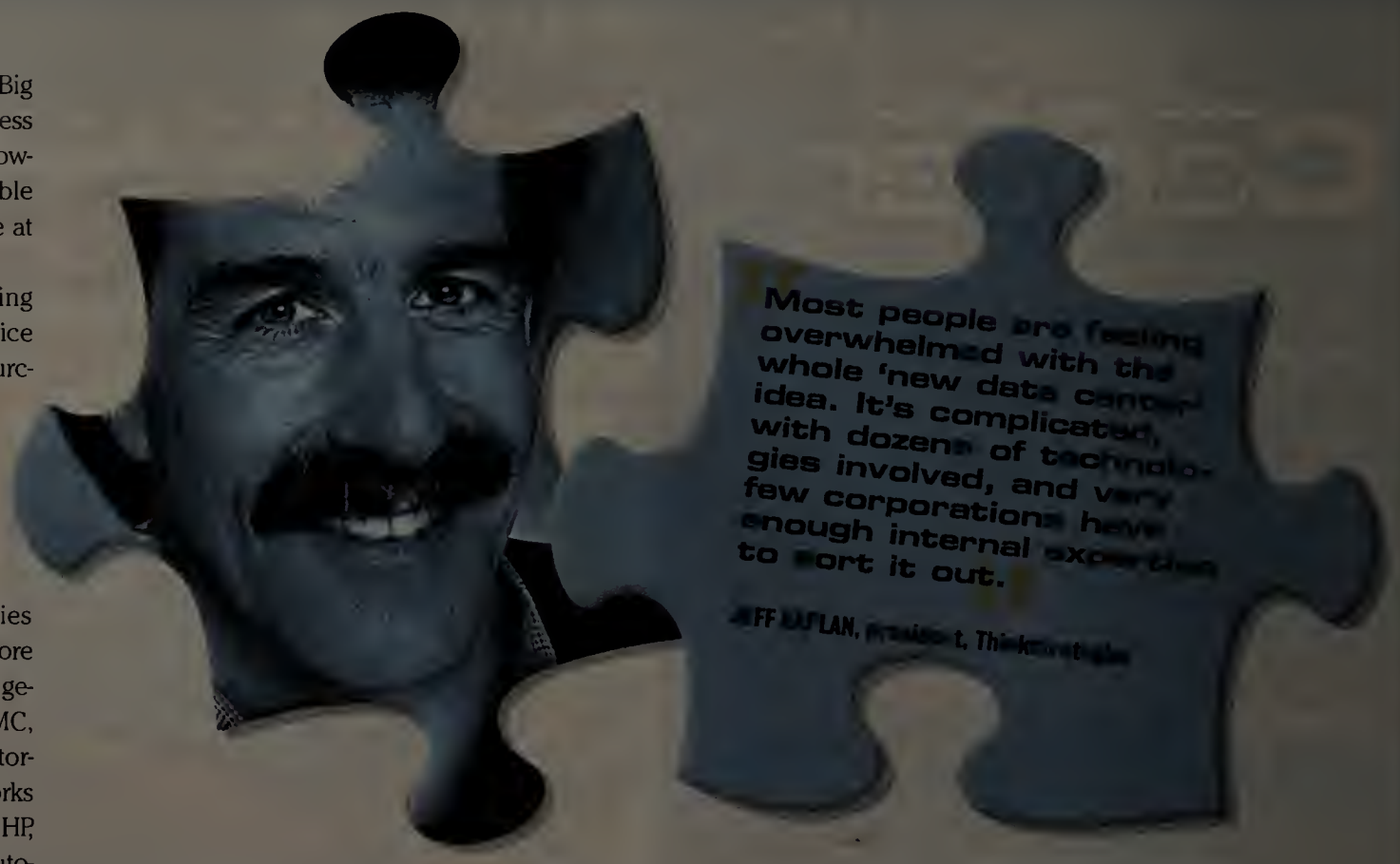
Data center outsourcing is a different game from what it was earlier this decade. Contracts are shrinking from six to 10 years to three to five years, according to Deloitte Consulting. Single-provider mega-deals are on the wane, Gartner reports. And while cost reduction is still a big reason for signing outsourcing deals, many corporations are no longer just interested in passing on "their mess for less," says Jeff Kaplan, president of Thinkstrategies. Increasingly, he says, IT executives look toward outsourcing providers for help migrating from legacy environments to the more flexible and lower-cost platforms of the new data center.

"Most people are feeling overwhelmed with the whole 'new data center' idea," Kaplan says. "It's pretty complicated, with dozens of technologies involved, and very few corporations have enough internal expertise to sort it out."

IBM, one of the leading outsourcers, sees a troika of concerns driving IT executives to consider outsourcing their

new data center migration, says Mike Riegel, Big Blue's director of on-demand business. "Business leaders today are simultaneously interested in growing revenue, cutting costs and being more flexible — never before have we seen them do all three at the same time," he says

Outsourcers are responding by incorporating more new data center technology into their service offerings. Here's a look inside five leading outsourcing operations.



CSC: Results-Driven Computing Grid

Computer Sciences Corp. (CSC), which does not make new data center products, plays up the benefits of vendor agnosticism.

In the storage arena, for example, CSC relies mainly on Hitachi Data Systems, whose Tagmastore Universal Storage Platform virtualizes heterogeneous storage systems into one pool, and EMC, which recently began offering a network-based storage virtualization system called Invista. It also works with a range of other vendors, including Fujitsu, HP, IBM and Sun. It tops off its storage offering with automated provisioning and management software from Creekpath Systems, says Chris Helme, CSC's vice president of global production operations.

In grid computing, CSC recognized that many users couldn't commit to the large capital investment often required. It developed the hardware-independent Results-Driven Computing (RDC) Grid, which can run any x86 operating system and any software stack "in a defense-like security environment," Helme explains.

Other new data center-type technologies in use at CSC include high-availability server clusters from HP, IBM, Sun, Veritas and other vendors, and capacity on demand for storage and computing. Beyond the traditional methods such as spare CPUs, dynamic workload management and spare capacity, CSC uses a proprietary method for expanding and contracting the computing environment to match business requirements, Helme says. CSC calls this Results-Driven Computing.

For its bandwidth-on-demand offerings, including MPLS, IP Security VPNs, virtual LANs, VoIP and QoS, CSC uses technology platforms from a variety of vendors, including Check Point Software, Cisco, Juniper Networks, Nortel and Packeteer, and various global carriers, including British Telecom and Global Crossing.

Thinkstrategies' Kaplan considers CSC's vendor-independence a big plus, but says the outsourcer could do a better job articulating its utility computing strategies and success stories. "It hasn't been in the game as much" as IBM, HP and Sun, he says.

EDS: Agile Enterprise Architecture

Electronic Data Systems' (EDS) biggest new data center outsourcing challenge is breaking out of its traditional "mega-deal" approach and creating a cost structure that can accommodate smaller, more flexible engagements. "It's been struggling to develop a coherent, consistent and compelling utility computing story that competes against IBM and HP," Kaplan says.

In that regard, the company last year created the Agile Enterprise Architecture (AEA). EDS has built a standard technology infrastructure on which to run the bulk of its customers' IT operations. Technology partners include Cisco for routers, EMC for storage hardware and Sun for servers.

Other components of the AEA plan are:

- A partnership with Sun for automatic provisioning of Windows, Linux or Unix on the vendor's AMD Opteron-based blade servers.
- Twenty-nine best practices for tasks such as server consolidation, utility computing, storage virtualization and application renewal.
- Use of the Microsoft .Net platform as the preferred operating environment.

"EDS now has a competitive list of, 'If we provide this function, there's a price for setting up each server and the ability to buy partial racks,' vs. 'Don't worry about how much you need but here's a great big bill each month,'" says Dan Twing, a research vice president with Enterprise Management Associates. "It's more a la carte."

At the network level, EDS is building a global IP/MPLS backbone that will serve as the foundation for grid and utility computing when it becomes operational this quarter. EDS says the goal is to manage systems and applications from any point in the world. "We will be able to virtualize our computing capacity between data centers here and in Germany, as well as our call centers and application delivery centers," says Gordon Martin, vice president of EDS's communications services.

EDS also is adding more applications to the list of packaged applications that it currently hosts, as well as virtualizing these applications.

The company enables physical virtualization by combining Cisco InfiniBand Server Switches and Multifabric Server Switches to allow an entire fabric of servers to share virtualized pools of I/O and storage resources. Cisco VFrame Server Fabric Virtualization software provides the provisioning and orchestration of compute resources over this unified fabric. To enable logical virtualization, EDS primarily uses VMware software but has started to add Sun's Solaris 10 containers. It also intends to use Microsoft's server virtualization product eventually.

"There's an extreme amount of interest in commingling workloads . . . to take advantage of non-used cycles in the environment," says Larry Lozon, vice president of hosting and storage services at EDS. Through the global network, application processing can be divided up among an EDS data center, the client site or a third-party environment.

EDS is rolling out its time-tested mainframe-metering model into the server-based world, and several clients are road-testing it. "What we'll be getting to is, 'Here's a particular application service, and it costs this much per hour to run, along with add-on services in terms of backup/restore capabilities,'" Lozon says. He says some of that may rollout in 2006.

HP: Adaptive Enterprise Strategy

You can't discuss HP's new data center outsourcing approach without immediately talking about its Adaptive Enterprise Strategy, the name for its infrastructure scheme that automatically adjusts to support business needs. This strategy includes the following new data center components:

- Grid computing: HP is developing technologies for intelligent enterprise grids that can process mission-critical applications while navigating corporate

See inside, page 62

MANAGE YOUR DATA CENTER FROM ANYWHERE...

In today's pressure filled "uptime" environment where a few minutes can cost you big dollars, customer confidence and worker productivity, you can't afford to have IT problems. And, you know fewer administrators and "lights out" control of your data centers gives you a much-needed security buffer.

Lantronix gives you access to ALL of your data center assets from anywhere over the Internet via a browser, and total out-of-band access if the network is down. We also offer the only console manager available with a NIST-certified implementation of Advanced Encryption Standards (Rijndael)† along with SSL and SSH assuring you the highest level of security available.

SecureLinx™

Lights out remote data center management.

Secure Console Managers

Remote management of Linux, Unix and Windows® 2003 servers, routers, switches, telecom and building access equipment.

- Respond faster and reduce downtime
- Consolidate resources and minimize costs

Remote KVM™ via IP

Manage an entire room full of Windows and Linux servers from a single desktop, from anywhere over the Internet.

- Eliminate need for multiple keyboards, monitors and mice
- No client software required

Remote Power Managers

Control the power, individually, to every device in the data center via a web browser.

- Reboot system remotely
- Ensure safe power distribution and reduce in-rush overload

Sun microsystems Solaris™ Ready

LANTRONIX®

Network anything. Network everything.™

Network Computing Editor's Choice

SecureLinx SLC16
Winner of the Network Computing Editor's Choice Award

†As of August 2004, SecureLinx SLC is the only console manager with a NIST-certified implementation of Advanced Encryption Standards as specified by FIPS-197 (Federal Information Processing Standards).

www.lantronix.com | (800) 422-7055

Inside,

continued from page 60

firewalls and networks.

- Server clustering: HP's suite of server clustering technologies and services includes HP Serviceguard for Unix and Linux, HP Unified Cluster Portfolio for High Performance Computing, HP OpenVMS Cluster software and HP BladeSystem /Systems Insight.
- Capacity on demand: HP offers a range of usage-based pricing capabilities, including Instant Capacity, Temporary Instant Capacity, pay per use, managed storage solution, an Exchange utility and a PC utility.
- Server virtualization: HP can pool, share and allocate resources across its Integrity, BladeSystem, Proliant and Nonstop servers.
- Storage virtualization: HP StorageWorks Enterprise Virtual Array Systems can adjust storage allocation size while applications are running.
- Management software: HP OpenView helps manage IT and telecom resources in an autonomic fashion. This includes application management, business management, configuration management, governance, infrastructure management and more.

HP uses its new data center technologies internally, says Nick van der Zweep, HP's director of virtualization and utility computing. So when internal or external customers ask for a new service, the service can be carved out of an already-running pool of resources and be up and running in 24 hours, van der Zweep says. If a project gets cancelled, those resources can be used for other applications.

HP also is strong in its capacity-on-demand capabilities. "It talks the right language of business vs. technical metrics and solutions," Kaplan says.

The HP Utility Meter monitors server and storage usage rates, then inputs those into a billing and mediation system so HP can charge based on active CPUs or gigabytes used on a daily or monthly basis. It can create custom measurements, too. For Dreamworks, for example, it charges per rendered animation frame. And for Amadeus, it charges per number of airline seats booked. When either infrastructure is not being used at peak capacity, HP can use it to run other applications.

Although usage-based computing works mainly on HP's own hardware, van der Zweep emphasizes that its outsourced data centers contain "a tremendous amount of" non-HP hardware. "We have some capability to shift resources around on other vendor's equipment using processes and software development that we don't sell to customers," van der Zweep says.

IBM: Virtual hosting

IBM offers virtual servers, a top-selling storage virtualization product, network virtualization services, and management for the new data center.

The company's Virtual Hosting outsourcing strategy encompasses the following:

- A multiplatform virtual server that lets corporations choose between 100% virtual hosting or a mix of virtualization and traditional hosting services. Customers can choose a pay-per-usage plan.
- Virtual server services for xSeries, pSeries and iSeries IBM servers. With these servers, multiple applications that previously resided on separate physical servers are run in partitioned, secure and logically isolated areas of a single device. As demand escalates, so does the ability to add processing capacity.
- Virtual server services for the Eserver zSeries 990 running Linux.
- Virtual networking services, including on-demand, usage-based firewall, load balancing and routing. These resources are pooled, and capacity is directed to applications or servers as needed. Router, firewall and load-balancing services are consolidated onto a single hardware platform, the virtual services switch, replacing more than 100 stand-alone appliances.
- Virtual infrastructure services, such as online database backup, storage on demand, backup and restore content caching and VPN connectivity.

The linchpin of this strategy is the Universal Management Infrastructure (UMI), a complex architecture that uses Tivoli management software, Websphere and other code to enable IBM to provision and automate service delivery.

The architecture includes 41 automated and standardized processes, including server provisioning (which IBM says can happen in a matter of hours), problem management (which uses autonomic computing to route alerts from applications or business processes) and configuration management (which can, for instance, automatically add resources from another server farm if the external Web site is hitting 80% utilization).

The benefit of this autonomic environment is a 15% to 20% reduction in infrastructure costs and a 30% reduction of application costs, Riegel says.

Users, too, expect UMI to lead to cost savings, says Rob de Haas, global head of data center services for ABN AMRO Bank, the Dutch bank that recently signed a five-year, $2.2 billion global outsourcing contract with IBM and four other outsourcers to build the bank's on-demand IT infrastructure.

"UMI will enable ABN AMRO to pay only for the computing power we use," he says. "It mitigates the risk of outages by applying IT resources where they are needed, raising service levels and improving application availability, which is critical to the bank."

Under the UMI umbrella, IBM also says it can support multi-vendor servers and the major operating systems, including Linux, Solaris, HP-UX, AIX and Windows.

Unisys: 3D Visible Enterprise

Phil Smith, vice president of outsourcing and infrastructure services portfolio management at Unisys, says potential clients spend a lot of time talking about the tension between the supply side (the CIO) and the demand side (the CEO or CFO) of IT — which ultimately leads to discussions of virtualization technologies. In response, Unisys executives created what they call the "three-dimensional visible enterprise," or 3D-VE. It defines the infrastructure needed to adapt to change in real time. To that end, Unisys offers Real Time Infrastructure (RTI) solutions, which provide shared infrastructure resources that adjust to business needs.

An example is the recently introduced Business Continuance SafeGuard 30m series, which enables the automatic recovery of Microsoft clustered applications in less than 30 minutes when recovery sites are more than 186 miles apart. Future RTI solutions will include:

- Standardization of infrastructure components for lower-cost business and IT operations.
- Dynamic provisioning and virtualization of infrastructure resources.
- Automation of infrastructure management to reduce costs and improve service levels.

To determine when and where to apply virtualization, the company first maps the customer's business process, using tools such as Proforma's ProVision, and then applies business activity monitoring tools

See Inside, page 64

Outsourcer strategies

CSC: promotes itself as vendor agnostic and offers a variety of virtualized options including storage virtualization and grid computing.

EDS: calls its utility computing efforts the Agile Enterprise Architecture, a standard infrastructure that includes highly flexible technologies.

HP: dubs its new-data-center efforts as the Adaptive Enterprise Strategy, which uses a wide variety of technologies to automatically adapt IT as business needs change.

IBM: promotes its Virtual Hosting outsourcing strategy, which includes virtual server, networking and infrastructure services and more.

Unisys: labels its new data center strategy as the "three-dimensional visible enterprise" and features real-time management and automation technologies.

Inside,
continued from page 62

to see, for instance, how many SAP transactions are being used to take new orders. Using the 3D-VE methodology, Unisys then superimposes the model created of the company's infrastructure. This helps determine whether an increase in sales orders necessitates an increase in processing capacity for handling inventory tracking, which would affect networking and server workloads.

"Instead of focusing on, 'My server hit a certain threshold so I better add more capacity,' it's driven by business activity and business process," says Marv Chartoff, Unisys' CTO of outsourcing and infrastructure service.

For server virtualization, Unisys uses VMware and Intel-based servers, such as the Unisys ES7000 server line. Its Tier-1 partners include EMC for storage and Oracle for grid computing.

Users applaud the use of virtualization. "Unisys owns the servers and other computing assets that the city of Minneapolis uses. Unisys is evolving its servers toward a more virtualized environment. That should enable us to realize greater efficiencies and deliver improved service to citizens," says Bill Beck, deputy CIO, city of Minneapolis (see related story, page 68).

Unisys also considers security one of its strong points, given its event and correlation engine. The engine collects incident data from multiple points on the network, puts that data into a rules engine where it's correlated and analyzed and detects breaches that otherwise might go unseen.

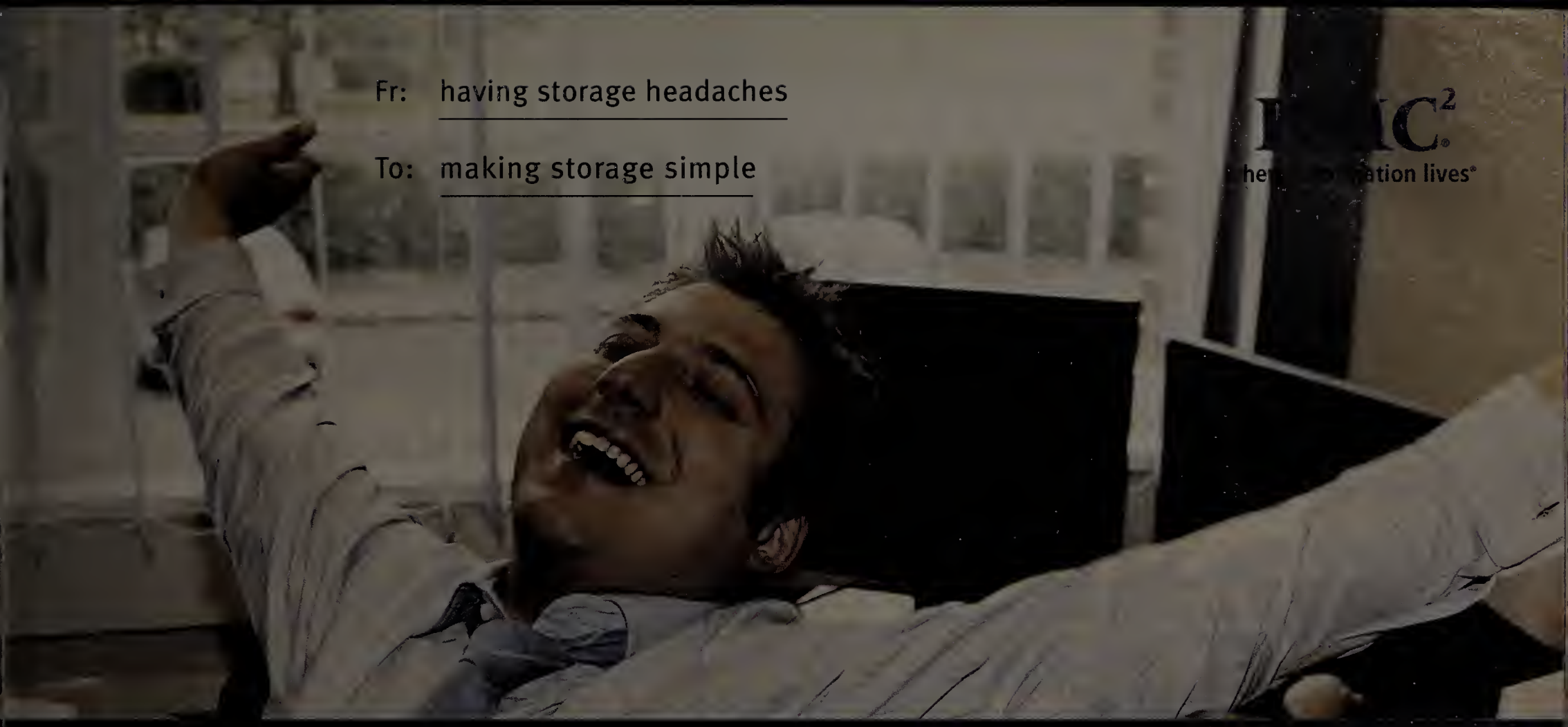
Beyond the products

Of course, assessing an outsourcer's technology underpinnings is only the first step in selecting which firm best suits your new data center needs. And that, experts agree, depends on which outsourcer can best match its technology to your business processes.

"The technology in this area has become almost a commodity," Kaplan says. "What the vendors are trying to differentiate on is in how they're solving customers' overall needs."

That was the major decision point for ABN AMRO. "All of the vendors have similar [product and marketing] concepts that they've demonstrated," says Tom de Swaan, CFO at ABN AMRO. "We were more concerned about how they met our needs in terms of service-level agreements and price points."

Brandel is a freelance writer in Newton, Mass. She can be reached at marybrandel@verizon.net.



NOW STORAGE RELIEF COMES IN AFFORDABLE, SCALABLE PACKAGES

Whether you need fast backup and complete protection or scalable and easy-to-manage storage consolidation for your mid-size enterprise, EMC brings you solutions that are high on results—and simple to use. That's because it's easier than ever to put award-winning software, robust storage, and world-class technical support to work solving your business's critical IT challenges.

EMC CLARiiON iSCSI Solution

Buy for $20,640

36 mo $651 Lease*

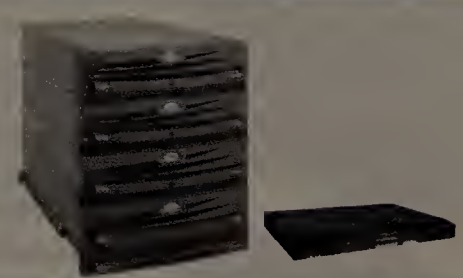
- EMC® CLARiiON® CX300i IP Storage Platform
- 365GB storage capacity (as priced), scalable up to 19TB
- EMC Navisphere® Workgroup license

EMC CLARiiON Backup Solution

Buy for $22,253

36 mo $702 Lease*

- EMC® CLARiiON® CX300 Storage Platform
- 365GB storage capacity (as priced), scalable up to 19TB
- EMC Navisphere® Workgroup license
- EMC Dantz® Retrospect® Multiserver Backup software



EMC CLARiiON SAN Solution

Buy for $24,525

36 mo $774 Lease*

- EMC® CLARiiON® CX300 Storage Platform
- 365GB storage capacity (as priced), scalable up to 19TB
- EMC Navisphere® Workgroup license
- 8-port switch

BUSINESS SOLUTIONS FOR MIDSIZE ENTERPRISES

CALL NOW **1-866-796-6369 or visit www.EMC.com/offers.**

*Monthly lease amount is based on 36-month Fair Market Value lease, two payments in advance. This offer is valid until December 31, 2005 and is subject to credit approval and final lease documentation. This proposal is based on assumptions regarding the equipment configuration and sale and is subject to change if the configuration, software, services, treasury rates, or sale price changes. Pricing, specifications, availability, and terms of offer may change without notice.

Doing your due diligence

Don't gamble with your new data center. Make sure your outsourcer has good answers to these five questions.

BY MARY BRANDEL

DAN PAGE

1 Can you offer new data center capabilities on platforms other than the ones you sell?

New data center pitches proffered by outsourcing providers that are also systems and software manufacturers presuppose an infrastructure built with their own material. But users also need to know how well their approach works with a varied environment, and whether the eventual plan involves a wholesale upgrade to a single-vendor platform, says Andreas Antonopoulos, senior vice president and founding partner at Nemertes Research. The goal is adaptive computing with vendor diversity, and at the moment, "it's not easy to do that," he says.

2 Can we contract for continued innovation?

Gartner recently completed a study in which users were satisfied with the day-to-day operational capabilities of their providers but not with the degree of innovation they offered once engaged in the deal. By innovation, users meant automatically applying new types of technology solutions to their environments when these made sense.

"Users are seeing and hearing about virtualization and on-demand capabilities, but they don't see it showing up in their deals" once contracts get signed, says Bill Maurer, a Gartner research director. He recommends inserting a contract addendum to make sure the technology being applied to your environment doesn't get out-of-date with what the vendor is offering to newer clients. For instance, two years ago vendors began regularly writing password resets into help desk outsourcing deals, but they didn't retroactively apply them to older contracts, Maurer says. You need to write that kind of flexibility into the contract.

Flexible contracts are all-important, Antonopoulos agrees. "Sophisticated processes for implementing change should be highly visible in the contract," he says. It's a good indication if the outsourcer has methodical and well-instrumented tools for the change process. "It's one thing if you have to send a triplicate fax order for having changes made vs. an online application you can use," he says.

3 How stringent are your service-level agreements (SLA)?

A key component of the next-generation data center is transforming from "IT as a set of systems" to "IT as a service," as well as the ability to measure that service via meaningful and realistic SLAs, Antonopoulos says. Old-school SLAs, for instance, might promise a four-hour window for a system repair. Next-generation SLAs cater to the importance of the application. "You might contract for silver, gold and platinum application platforms, where you choose your service levels and pay accordingly," he says.

4 What are my payment options?

Payment options are a big indicator of whether a provider is new data center-ready. For instance, rather than charging by the CPU or per seat, Antonopoulos says, it should charge based on things such as transactions or traffic levels, not the use of infrastructure. The key is to pay for actual, not peak, usage. "If the metrics used for charging relate to infrastructure components, you have a problem," he says. Another indication is whether the provider charges on a CPU basis, which indicates dedicated servers, or a more granular, sub-CPU level.

5 Can you validate your work?

To ensure the outsourcer can handle your particular needs, ask for a minimum of three references and make sure they're engaged in a similar type of deal to yours, Maurer says. "If you're seeking, say, storage virtualization, you better be darn sure that if the company says it can do it that there are reference checks in place," he says. The reference should include representatives from both business and IT.

Brandel is a freelance writer in Newton, Mass. She can be reached at mary brandel@verizon.net

Introducing data centers on demand

New architecture supports power densities of today... and tomorrow

Hot-aisle Ceiling Tiles/Cable Trough
Seals in hot air, prevents mixing with room air

WINNER
2004 BEST OF INTEROP NETWORLD+INTEROP
CRN NETWORK

BLADE READY™

APC solutions that carry the "Blade-Ready" Logo are designed to handle the demanding network-critical physical infrastructure requirements of high-density blade server applications.

Chamber Doors
Access to hot aisle, locks for security

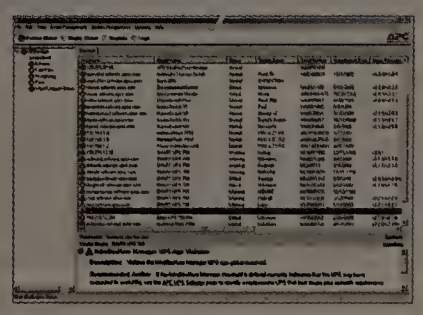
Now you can quickly deploy a standard- or high-density site of any size with scalable, top-tier availability.

Part Number	Usable IT Racks	Average kW per Rack	Price to buy	Price to lease (36 installments)
ISXCR1SY16K16P5	1	up to 5kW	$14,999*	$499**
ISXT240MD6R	6	up to 5kW	$149,999*	$4,999**
ISXT240MD11R	11	up to 5kW	$249,999*	$7,999**
ISXT280MD40R	40	up to 5kW	$699,999*	$21,999**
ISXT2800MD100R	100	up to 5kW	$1,649,999*	$50,999**
High Density Configuration *(shown above)*				
ISXT280HD8R	8	up to 10kW	$399,999*	$12,999**

High density upgrades start at $10,999
On-site power generation options start at $29,999

All multi-rack configurations feature:

- ✔ *N+1 power and cooling*
- ✔ *Secure, self-contained environment*
- ✔ *Peak capacity of 20kW per rack*
- ✔ *Enhanced service package*
- ✔ *Integrated management software*



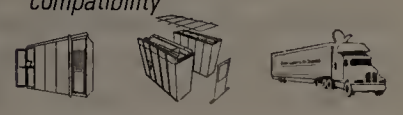
InfraStruXure™ Manager

What is data center on demand?

InfraStruXure™
DATA CENTERS ON DEMAND

Highly available and manageable, quick-to-install, scalable architecture that easily supports both standard- and high-density applications.

- *Up to 20kW a rack for any blade server application*
- *Unlimited racks*
- *Ships in 5 days****
- *Installs in 1 day****
- *Optional on-site power generation*
- *Raised floor not required*
- *Vendor neutral guaranteed compatibility*

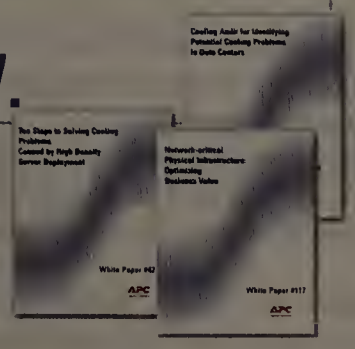


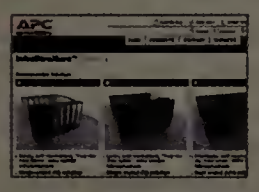
InfraStruXure™ can be purchased as a modular, or mobile system

Order your solution today. Call 888-289-APCC x3527.

Visit today and receive FREE APC White Papers

Visit us online and download APC White Papers.





InfraStruXure™ BuildOut Tool

Don't see the configuration you need?

Try APC's online InfraStruXure™ BuildOut Tool today and build your own solution.

Go to *http://promo.apc.com* and enter key code f986x Call 888-289-APCC x3527

APC® Legendary Reliability®

* Prices do not include IT equipment and are subject to change. ** Indicative rates are subject to market conditions. *** Install and delivery times may vary.

The big decision

IT executives tell how they've come to their outsourcing choices.

BY JOANNE CUMMINGS

When Karl Kaiser became CIO of Minneapolis five years ago, he found the IT infrastructure was not as capable of supporting the business of running a city as he — and the city constituency — wanted it to be.

"Sixty percent of my budget and management energy went into just keeping the infrastructure alive," says Kaiser, noting that his staff was overwhelmed with break/fix duties inherent in the city's multivendor environment and seemed more concerned with gee-whiz technology than serving the city.

Minneapolis' 4,000 city workers, including police officers, firefighters and government officials, needed more than that. "They were looking for services that went well beyond installing and fixing computers. They wanted more applications, especially Web applications," he says.

Besides new Web initiatives, Kaiser had to fund a disaster recovery program, find a new space for his data center (which was ending its lease with the county) and staff the city for 24/7 support — all within a tight budget. Kaiser took a hard look at outsourcing and decided it made sense — to a point. He sold his entire desktop, server and network infrastructure — and its management — to Unisys, while keeping application development in-house. The result, he says, is a happier constituency and an estimated $20 million savings over the seven-year life of the contract.

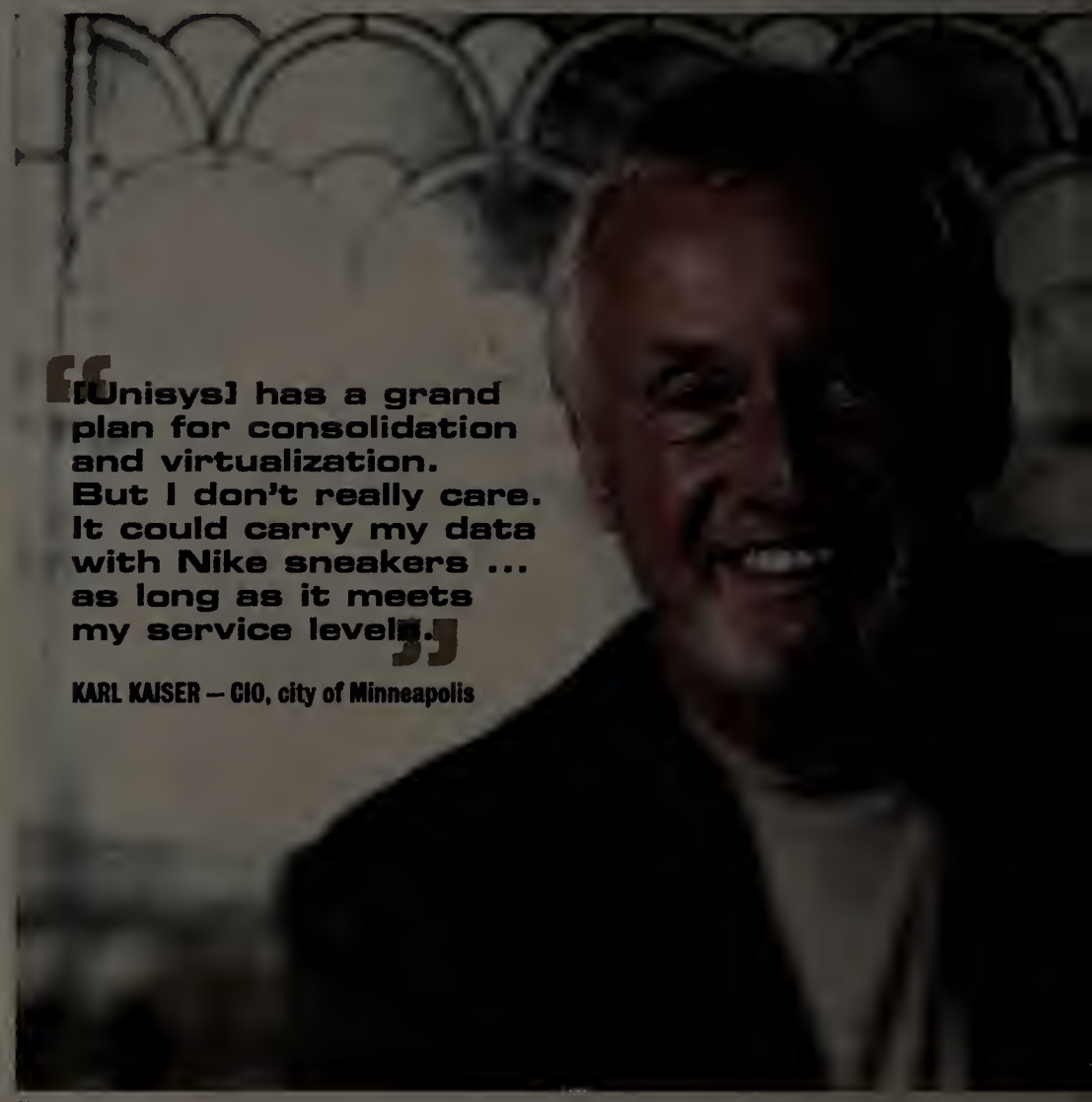
"I decided to get out of that business because the information technology assets and the associated support functions in my mind are a utility. It's like you come to the office and switch on the lights. The light comes on, but that doesn't mean you need to own the power plant," he says.

Minneapolis is not alone. Faced with similar prospects and the need to move quickly to next-generation data center environments, many organizations see the benefits of offloading mundane operations tasks while focusing on the value IT brings to the business.

Starwood Hotels and Resorts Worldwide, for example, outsourced its hardware and network infrastructure to HP in an effort to ease its move off a mainframe and onto a next-generation computing environment that features Web services running on Unix and Linux servers (see related story, page 84). By offloading the operations side of the house, IT could focus on developing core profit-generating reservations and loyalty systems applications, says Tom Conophy, CTO at the White Plains, N.Y., hotelier.

"We wanted to make sure we kept the thought leadership within Starwood," Conophy says. "You can't just go out and buy our reservation system, like you would any [point of sale] or CRM application. I would never outsource a custom-built application that is extremely crucial to our business."

Because of the critical nature of the applications, Conophy has retained ownership of the hardware on which they run. He has, however, offloaded hardware support. "We still look at the Unix and Linux configurations ourselves, and then work with HP to get those engineered, configured and established. We're not quite at the point where we're willing to toss HP the keys — the applications are too custom and too crucial, and not something HP could get certified in."



"[Unisys] has a grand plan for consolidation and virtualization. But I don't really care. It could carry my data with Nike sneakers ... as long as it meets my service levels."

KARL KAISER — CIO, city of Minneapolis

STEVEN VOTE

Kaiser's view is more extreme. Because Unisys now owns the city's computing resources, it has the onus of gaining efficiencies for the customized and regulated municipal government environment. "Unisys bought my 150 servers and put them in its data center, and it has a grand plan for consolidation and virtualization," Kaiser says. "But I don't really care. It could carry my data with Nike sneakers from one corner to another as long as it meets my service levels."

Apple to apples

Deciding whether to outsource your next-generation IT infrastructure goes well beyond studying criticality, as companies typically have done when considering what to outsource, experts say. The new litmus test is whether IT has become a service operation. Only when an organization views IT as a service can it truly measure the costs and weigh the value of outsourcing, they say.

If an organization views IT as a shared resource, then business units no longer expect or need their own application servers, explains Andreas Antonopoulos,

See Outsourcing, page 70

No more unidentified issues.

Zero in on the source of any SAN slowdown.

Dashboard delivers a visual snapshot of entire SAN fabric performance.

Welcome to a network tool so smart, it's almost unreal. NetWisdom. The intelligent SAN performance monitoring solution that keeps you one step ahead of trouble.

Instantly measure SAN performance against the baseline to verify you're meeting internal service objectives. The exclusive "visual dashboard" displays real-time health of the entire fabric. And if your SAN stumbles, you can quickly identify and engage the vendor at fault, to drive swift problem resolution.

Understand. Identify. Resolve. Fast. With the NetWisdom SAN performance monitoring solution.

Get more details during a free webinar, "Improving SAN Performance and Uptime with NetWisdom." Sign up now at http://finisarevents.webex.com

Finisar

Outsourcing,

continued from page 68

principal analyst at Nemertes Research and author of the New Data Center newsletter (www.networkworld.com, DocFinder: 9321). "Instead, each business unit gets access to a slice of a server that allows it to meet internal [service-level agreements]. If you can transform the company culture to accept shared resources and lose some control and, in return, get better utilization and lower operational costs, then the question of outsourcing becomes a lot easier" to answer, he says.

Once IT reaches that point, it should have a good idea of what a specific application costs to deliver, in terms of reliability, availability and performance. Then it can structure SLAs appropriately and make an informed decision about whether outsourcing makes economic sense.

"If you can't measure it, you can't outsource it," says John Pierce, global solutions architect for outsourcer Patni Computer Systems. "The first question I ask when people are considering outsourcing is, 'Do you have a chargeback system?' If they say no, I think 'Oh boy, this is a disaster waiting to happen' because that means the users have no idea what this is costing them. How can an outsourcer be expected to control costs when IT doesn't even know what they are?"

In Pierce's experience, that means a company oftentimes finds itself needing to commit to a six- to nine-month engagement to determine costs, service levels and baselines before it gets to the outsourcing stage, he says. Only when those aspects are understood should enterprises lock into long-term outsourcing contracts, he adds.

A good starting point

The best starting place for organizations that already view IT as a service are easily measurable chunks of the environment, such as storage. "Storage is easier to transform into a service and therefore it's easier to outsource than other aspects of your infrastructure. There are complexities — an online megabyte is different from an offline megabyte — but they are nowhere near the complexity required for a server to deliver a specific application. Storage does not require application updates and operating system patches and so on."

Starwood's Conophy recommends starting with functions such as help desk, operations or network management, while Kaiser advises carefully considering the complexities of each chunk. "We've looked at outsourcing [human resources], for example," Kaiser says. "In our case, we have to consider that we are a public sector organization that has a heavy union environment, with 26 bargaining units in the city. And that means there are certain HR functions and requirements that may not be as easily outsourced as in the private sector. But components of it — like payroll — might make sense."

Staffing issues

Staffing concerns often serve as an impetus, as was the case for Kaiser in his decision to outsource the city's infrastructure to Unisys. Rather than hiring high-end, expensive expertise, Kaiser can rely on Unisys to leverage its larger staff and resources. The result, he says, is better service.

Much of his operations staff went to Unisys in the deal — a decision Kaiser says was the best for the city and the strict technologists. "We're not in the technology business anymore," he says. "We need people who are focused more on business needs before they even think about technology. If you want to be in the technology business, go to a technology company. Go to Unisys."

The staff now is smaller, yet happier. Kaiser says. "In the past, we made a process faster through the application of technology, and we didn't look at the process and see if it made sense. But now, we focus on making those business processes more efficient. Plus, the staff can focus more on how the networks and infrastructure can best serve the business process, without having to worry about handling support tasks," he adds.

Breadth of expertise is definitely a reason to consider an outsourcer when moving to next-generation technologies, Nemertes' Antonopoulos says. "You need very broad skills, in terms of maintaining a highly heterogeneous environment and in understanding the technology's relationship to the context of IT as a service," he says. "So it's not just the technology, but how it affects the applications that are running on it, and what the dependencies are between that and the servers, and the network and everything else."

Most organizations don't have the resources to attract, maintain and manage people with such diverse skills, he says. "The outsourcing provider has the economies of scale to be able to ensure that it's not going to hire one person and then hardly use him because it has one Linux server."

Chicken or the egg?

Whether you choose to outsource or not, the key is to start migrating to next-generation technologies, experts say.

"The transition from a current state to the next-generation data center environment is one that we've seen overwhelming evidence pays for itself," Antonopoulos says. "So server and storage aggregation, consolidation and virtualization bring benefits immediately that will offset their costs. The upshot is that there's a very good ROI model for moving in that direction anyway — whether you decide to outsource or do it internally."

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@comcast.net.

The IT complexity food chain

Binod Taterway, founding partner at outsourcing firm Blue Canopy, identifies four levels of complexity inherent in any IT organization. Here he explains them and tells why outsourcing becomes a less practical option as complexity increases.

1) Network infrastructure. Lowest on the complexity food chain, networks are the most easily measured and managed, and thus, the most easily outsourced, Taterway says. "Not only is network infrastructure well established, it can also be well instrumented so that you can track it easily and provide good insight into it. It's a good place to start."

2) Physical infrastructure. This includes hardware, operating systems, storage devices and so on. These too can be somewhat instrumented, he says, but the complexity lies in their lack of plug and play. "If one storage array goes down, can you switch to another, and do you have the infrastructure to do the switching and track it?" he says. "And do you have different SLA parameters because you're providing storage on a contingency basis, and how do you bill for those?"

3) Data. Outsourcing the database environment is even more complex because sometimes business processes are stored within the data. "If you're outsourcing that, what does it do to your core competency?" he says. "Can you change your business processes on demand when they're tied so closely to your data, which is managed elsewhere?"

4) Applications. The most complex, at least in the IT world, are the applications that are core to running the business. "If you outsource applications, you have less utility and a more tightly coupled relationship between the provider and client," he says. "It's far less flexible and far more difficult to do successfully."

— Joanne Cummings

YOUR COMPANY'S FIREWALL

Introducing DuPont™ certified limited combustible cable. In the event of a fire, securing your business' uptime is crucial. The data communications cable you choose could play a key role in protecting your network technology investment. DuPont™ certified cable produces 20 times less smoke than other plenum rated cables. And less smoke means less costly downtime, making it the most advanced fire safety cable technology available today. *To learn more about DuPont™ certified limited combustible cable or to request a free CD, log on to teflon.com/cablingmaterials or call 1-800-207-0756.*

DUPONT

The miracles of science™

The self-managing desktop

One company discusses new automation tools that give desktops the respect they deserve.

BY BETH SCHULTZ

When it comes to the automation portion of your new data center strategy, don't forget the desktop.

So says Herb Schmoll, manager of end-user services at Jarden Consumer Solutions, the Boca Raton, Fla., company formerly known as Sunbeam Products. As much as automation is changing network and server operations, it is affecting desktop management, he says. So great are the implications that companies need a "desktop architect" on staff, he believes.

At Jarden CS, for example, a desktop architect has helped craft automated patch management processes and has investigated the use of application virtualization. The primary tool at the desktop architect's disposal — the Altiris Client Management Suite (CMS) — is a class of tool that differs from the typical help desk products usually associated with desktop management. This systems management suite performs functions such as software distribution, IT asset management, remote control, PC backup and configuration management.

"Tools like Altiris ... have huge implications [for desktop support] — suddenly, I can do things the server and network groups have long been able to do. That's an order of magnitude more sophisticated than desktop management has ever been," Schmoll says.

He offers his automated patch management process as an example. With the help of The Blue Willow Group, an Altiris integrator, Schmoll's desktop team established a "package server" network for distributing Windows and Office patches to 21 Jarden CS facilities around the world. At all but one site, a desktop machine houses the local package server, housing patches downloaded from an Altiris Notification Server located in Boca Raton. Only in Boca Raton, which serves as headquarters, does the package server reside on a server machine, he says. When a user machine reports periodically to the Notification Server, located in Boca, it needs a patch, it taps into the package server on the local subnet for the appropriate patch. The automated process is transparent to the user, and the reboot is handled automatically.

Fast and easy

Automated patch management


THE RINGING
Getting rid of the old phone system was
SWITCHING TO COVAD VoIP will make your company more PRODUCTIVE, easier to MANAGE and save as MUCH AS 40%.
BUT what are the DARK consequences if your OLD SYSTEM doesn't want to be SWITCHED?
Cisco Powered
SEE IT AT THERINGINGMOVIE.COM
COVAD | voip
The New Voice of Bus

Jarden

continued from page 72

cost desktops, is saving Jarden CS's desktop team thousands of hours of manual effort. For instance, Schmoll recently determined that over the course of a couple of months, this automated process resulted in 110,000 "touches" of user machines. Undertaken manually, at 10 minutes per update, those patch updates would have required 17,000 hours, or about 2,000 working days, Schmoll calculates. Instead, one technician spent about 120 hours testing the patches and readying them for deployment.

Likewise, using the software distribution capability found in Altiris CMS, Schmoll's team recently installed Office 2003 on 300 employee desktops in the course of about an hour. Previously, that effort would have meant desktop support technicians going onsite (or asking local "super users" to help with the installs) and spending a half-hour per user machine, for a total of about 150 hours, he says.

And, a recent companywide deployment of a new version of KVS Vault, an Outlook add-on for e-mail management, took all of 15 minutes. Previously, loading the new software on 1,400 user machines would have taken Schmoll's team about 224 hours, at 10 minutes per machine, he says.

Schmoll gives kudos to senior management at Jarden CS for the open-mindedness regarding the desktop group and the tools allowed. "The $200,000 investment we've made in Altiris is not uncommon for a network operations or server engineering team. But it's an outrageously large amount of money to give to people who usually put Office on desktops. That it would be open to discussion is what makes Jarden CS management out of the ordinary," he says.

Access to sophisticated systems management tools makes having a desktop architect all the more important, notes Schmoll, who has been advocating a desktop architecture position for years. His interest in the idea arose after he felt belittled during a meeting with a "mainframe guy" over computing power. Schmoll prepared for the next meeting by tallying up the RAM, processing, storage and so forth of the desktop machines under his purview. He showed that the company's desktop capacity was four times greater than that available with the mainframe. "If I have a 'computer' that's that powerful, running 1,700 or so applications, I think I need an architect for it," he says.

Within his current organization, the desktop architect is responsible for determining what employee machines look like — what versions of the operating system and applications are right for each computer, what policies and procedures to implement, whether a user gets access as a guest, a power user or as an administrator, for example. Most companies don't empower one person to make all these decisions, Schmoll says. But with new-data-center-style automation, such a move certainly makes sense. "I need someone with the credentials, the intellect and the experience who will be able to stand behind decisions affecting the desktop," he explains.

As an example, Schmoll tells of a recent incident that involved the network group's rollout of a VPN client with personal firewall. The personal firewall disabled remote control software, a critical tool his team uses to support users. The desktop architect was able to convince the network operations manager that the user support group's access to the remote control tool overrode the additional, but not critical, protection provided by the personal firewall. The network group uninstalled the personal firewall until both teams could agree on a product that met all needs. (Schmoll favors the personal firewall in XP).

Apps on tap

With a desktop architect acting as his technology specialist, Schmoll is free to be the team's visionary. And the next likely move he sees is application virtualization. Schmoll sees this new data center technology as a way of streamlining the software distribution process. Altiris makes application virtualization available in its Protect tool, which uses a specialized File System Layer technology that keeps track of an application's file system and registry footprint. Each File System Layer can contain an entire application or other collections of files and data. These software layers can be deleted, archived, migrated to other machines and restored with user preferences and data, all without touching the underlying Windows installation, according to Altiris.

Application virtualization will speed the time needed to individualize desktop machines, Schmoll says. And, application virtualization would make granting temporary application access much easier, he adds.

As Jarden CS's experience illustrates, network executives are wise to remember that the desktop is also the computer. ■

From outsourced to in-house

In early 2002, Herb Schmoll, who was managing end-user services at a global financial services company, got a call from a former boss to join him at Sunbeam Products. Much to his coworkers' amazement, he made the leap, landing at a company that had only recently declared what was then the U.S.'s all-time largest bankruptcy.

But Schmoll trusted his former boss, who he had worked for not once, but twice before, and liked the challenge presented to him — to insource user support in two months. In a series of initiatives to reduce costs by about $3 million, IT decided to bring user support services, server and application services and WAN, telecom and AS/400 operations back in-house. For years, the company had outsourced those to Computer Sciences Corp. (CSC). Though the CSC relationship had not been adversarial, IT did expect services to improve after the insourcing, Schmoll says.

Hired in late March as manager of end-user services for Sunbeam (now Jarden Consumer Solutions), Schmoll had insourced user-support services by June 1. That effort entailed hiring and training his team (some of whom he picked up from CSC), evaluating and adopting the best of CSC practices (such as a centralized help desk), and selecting basic technology, such as an enterprise-scale incident-tracking tool.

Schmoll characterizes the actual cutover from outsourced to insourced as a "non-event" for employees. They were given mousepads with a new support logo, but that was about the only change they would have noticed, he says. "If someone had a problem, he'd call the same number and use the same extension. He wouldn't know that behind the scenes that call wasn't going to the CSC help desk in Fort Worth, but to our new centralized help desk in Boca Raton," he says.

The decisions Schmoll made regarding the service desk and incident management were in line with the Information Technology Infrastructure Library (ITIL) best-practices road map. For example, for the service desk, he built an SQL-based data repository that let him track and analyze problems and requests — and prepared the way for implementing additional pieces of a services management framework, including problem and change management, both of which were undertaken in 2003.

Schmoll's ITIL work continues, as he works on release management best practices this year and plans on configuration management work as a 2006 agenda item.

— *Beth Schultz*


The best view in the city, the country, the world.
At one time, DHL had a data center in every country in which it operated. The result was a massive collection of small IT networks—without a mission control. With the help of HP Services and HP OpenView software, hundreds of data centers became three. By consolidating, DHL is now better able to share information, implement IT changes globally and "see" their entire network from a single point of control. Now, change never goes unnoticed. For more on HP's Consolidation Solutions, visit hp.com/info/consolidation
change
hp
Solutions for the adaptive enterprise
invent

NDC TIPS & TACTICS

Tooling up for the new data center

Research analyst Andreas Antonopoulos identifies best-of-breed tools for the next-generation data center.

BY ANDREAS ANTONOPOULOS

By now we're all well versed on the attributes of the "new data center," characterized by service-oriented applications running over a virtualized service-oriented infrastructure. This next-generation data center brings the benefits of agility, lower operational costs, better utilization and rapid application deployment.

Architecturally, a next-generation data center relies on commoditized pools of resources that can be combined to support a variety of applications. This architecture applies to the four critical pillars of data center infrastructure: management, storage, computing and networking. But how can organizations transform their data centers to the next-generation model? The trick lies in translating this vision into a series of discrete, incremental steps — a road map, in other words. The road map comprises four major steps: consolidation, standardization, virtualization and utility.

With consolidation, multiple devices are consolidated into a single location. While standardization ensures that devices have consistent interfaces and protocols. Virtualization abstracts the physical infrastructure creating one or more virtual (logical) instances running on a single physical resource. For example, one physical server might be virtualized to appear as eight virtual servers, perhaps running different operating systems. And utility describes an infrastructure that appears as a service for purchase on demand, similar to a utility such as water, electricity or phone service.

These four steps apply across each of the critical infrastructure pillars. An IT organization can start with whichever pillar makes the most sense for it — or even all at once. The best part is that even an incremental step in one area can deliver tangible benefits.

After extensive research on the new data center, Nemertes Research has identified some of the most interesting products that "move the needle" in innovation. For each category, we looked at approximately 30 products — 120 in all — and selected those that best demonstrate customer-driven design that responds to the needs of IT executives implementing the new data center. Each highlighted product adds a key innovation or implements a novel approach to data center design. (Product descriptions and features are derived from vendor documentation. Nemertes has not tested the products highlighted in this story.)

DAN PAGE

Pillar 1: Management

Management has become an increasingly difficult data center discipline, primarily because real-time management and provisioning has replaced infrastructure design as the means for delivering application performance.

Specifically, in the old data center model, every application would have a set of dedicated servers, an infrastructure designed to the required tolerances for the delivery of the application. In the new data center model, the infrastructure acts as a blank slate: Commoditized servers are loaded with operating system images

See Tools, page 79

"This little thing KX butt!"

Introducing the next generation of KVM

The Dominion KX101

Actual Size

All the power of our Dominion® KX packed into a smaller, incredibly versatile form factor.

- Deploy them by the hundreds, even in dispersed locations.
- Manage them all centrally through a single IP address.
- Get to them all without the access limitations of a KVM switch.

Visit us online to learn more about switchless KVM and the future of infrastructure management.

www.KXbutt.com

Raritan®
When you're ready to take control.™

secure thinair

poweredbycisco.

Passwords, purchase orders, e-mails.
All flying through thin air, now protected through thin air.
Cisco self-managing WLANs let you give freedom to users
without giving up control. So collaboration happens
from conference room to company canteen.
And private business never becomes public domain.
For more on Cisco WLANs, go to
cisco.com/poweredby.

Cisco Systems

collaboration. powered by

Tools,

continued from page 76

and applications and provisioned in real time. Management tools now are the key to provisioning tailored infrastructures (composites of servers, storage, networking and security) in real time and in response to demand fluctuations. This new model is far more efficient in terms of utilization and can create cost savings by postponing purchases of servers and disks. But it dramatically increases the demands on management systems. An effective management solution must be able to translate application requirements into a set of configuration directives that can be applied during provisioning of resources. It also must be able to monitor the individual elements, such as servers and disks, and be able to relate an equipment failure to the business processes that are supported by that resource.

Featured tools: IBM Tivoli Provisioning Manager and Intelligent Orchestrator

IBM Tivoli Provisioning Manager, through IT service management automation packages, automates the manual provisioning and deployment process. Pre-built automation packages provide control and configuration, as well as allocation and reallocation, of major vendors' products, while user-customized workflows allow for implementation of a company's best practices and procedures. Provisioning Manager reduces the need for just-in-case provisioning and helps automate on-demand provisioning and configuration across an application environment — servers, operating systems, middleware, applications, storage and network devices.

The results are powerful: streamlined IT systems management, improved human and technology resource productivity, higher systems availability and fewer unnecessary infrastructure purchases.

The Intelligent Orchestrator tool extends the provisioning functionality, allowing automation and orchestration of IT resources on demand based on business priorities.

Intelligent orchestration can help an IT manager get better utilization out of existing resources, minimize implementation time and improve responsiveness. The tool monitors the servers, middleware and applications under its control, senses degrading performance and determines an action plan. It can determine where (for which application) a resource is needed and instruct the Provisioning Manager to deploy a server automatically, install the necessary software and configure the network. Using capacity management capabilities, Intelligent Orchestrator can predict resource availability or need and begin the provisioning process, on demand, to help match IT resources with fluctuating workloads.

Runner-up: HP OpenView Management Suite for Servers

HP OpenView Management Suite for Servers, using Radia, is policy-based change and configuration management software that lets administrators inventory, provision and maintain software and content across heterogeneous server platforms.

Runner-up: BladeLogic Operations Manager

BladeLogic Operations Manager addresses the full lifecycle of server management, change control, administration and compliance for a heterogeneous infrastructure.

NDC tools at a glance

In each of four categories, Nemertes Research looked at approximately 30 products, or 120 in all, to come up with this list of helpful tools for the new data center. Here's a quick look:

Management
Featured tools: IBM Tivoli Provisioning Manager and Intelligent Orchestrator. **Runners-up**: HP OpenView Management Suite for Servers; BladeLogic Operations Manager.

Storage
Featured tools: Cisco MDS with IBM TotalStorage SAN Volume Controller software. **Runner-up**: NetApp V-Series

Computing
Featured tools: VMware's ESX Server, VirtualCenter and VMotion. **Runner-up**: Egenera BladeFrame

Networking
Featured tool: Juniper DX Application Acceleration (formerly from Redline Networks). **Runner-up**: Cisco ONS Data-Center interconnect

Pillar 2: Storage

Data is the focus of any data center, and data storage, management and retrieval are critical disciplines. Data center storage encompasses "live" data, which is frequently accessed and processed, and various shades of "near-live" data, which is stored on slower media or offline archival media. Key technologies are storage-area network (SAN), network-attached storage (NAS), virtual SAN (VSAN) and Fibre Channel.

IT executives have had the most success using SANs to implement consolidation and virtualization. The success in storage consolidation and virtualization can provide broader insights into the power of the next-generation model.

Featured tool: Cisco MDS with IBM TotalStorage SAN Volume Controller software

The Cisco MDS 9000 family is an open platform for network-hosted storage applications. Cisco MDS 9000 multilayer directors and switches with IBM TotalStorage SAN Volume Controller software provide the ability to virtualize storage securely, anywhere in the storage network.

Cisco MDS 9000 Fibre Channel directors and switches house the Cisco Caching Services Module (CSM). Each CSM performs the storage virtualization functions of IBM TotalStorage SAN Volume Controller.

Higher security and greater stability can be achieved in Fibre Channel fabrics by using VSANs. They provide isolation among devices that are physically connected to the same fabric. With VSANs, multiple logical SANs can be created over a common physical infrastructure, offering the follow-

ing advantages:

- Security — Isolation of fabric services keeps traffic within a single VSAN.
- Scalability — Ability to add or move individual ports to a VSAN, taking advantage of the physical infrastructure.
- Role-based access — Role-based permissions for switch configuration or administration are assigned to users on a per-VSAN basis.
- Host VSANs and disk VSANs — Disks that are put into a pool to be virtualized are contained in their own VSANs. Similarly, multiple VSANs can be created for managing tiered storage. The virtualized logical unit numbers are exposed to the hosts in host VSANs. This limits the scope for potential configuration errors when adding hosts or storage to an environment.

Runner-up: NetApp V-Series

The network-based NetApp V-Series family virtualizes tiered, heterogeneous storage arrays, allowing companies to leverage the dynamic virtualization capabilities across existing Fibre Channel SANs.

Pillar 3: Computing

Computing is obviously the core data center discipline. This can be seen in the way data centers are often depicted in architecture diagrams: servers are prominent and other resources such as storage, networking and management are drawn as background. The server-centric view of the data center is changing to a service-centric view. In the new data center model, computing resources (servers) are not dedicated to a single application. Instead, pools of commoditized servers or blade servers are sliced up and provisioned dynamically. Instead of designing a tailored infrastructure for each application, the infrastructure is created on the fly as a composite of different resources.

Virtualization has two faces. Partitioning is where single servers are sliced into multiple virtual servers running different applications or even different operating systems. Thus, a single physical server can be fully utilized even though each application only requires a small slice of capacity. Clustering is the opposite face of virtualization, in which several servers are combined to deliver a powerful virtual computer for high-performance computing applications. The greatest benefit of this server virtualization is the ability to reuse resources for different purposes and to maximize the utilization of each resource, thereby postponing purchases of new servers.

Featured tools: VMware's ESX Server, VirtualCenter and VMotion

VMware ESX Server transforms physical systems into a pool of logical computing resources. Operating systems and applications are isolated in multiple virtual machines that reside on a single physical server. System resources are dynamically allocated to virtual machines based on need and administrator-set guarantees, providing mainframe-class capacity utilization and control of server resources. Advanced resource management controls allow IT administrators to guarantee service levels across the enterprise.

Centralized management of VMware servers comes with VirtualCenter. This virtual infrastructure management software provides a central point of control for computing resources. It allows users to

See Tools, page 82

maybe it's time you look at

AdaptiveKVM™

When servers are down or inaccessible, you need fast and reliable out-of-band access and control.

Cyclades AdaptiveKVM™ (patent pending) is the industry's first integrated solution that combines KVM over IP and Microsoft® Remote Desktop Protocol (RDP) technology in a single appliance. By using KVM over IP combined with RDP, AdaptiveKVM provides continuous access for remote server management.

Next-Generation KVM Solution

AlterPath™ KVM/netPlus

Download a **FREE** White Paper on AdaptiveKVM
www.cyclades.com/akvm

www.cyclades.com/nw

1.888.cyclades • sales@cyclades.com

cyclades

Tools,

continued from page 80

instantly provision servers, globally manage resources and eliminate scheduled downtime for hardware maintenance.

With VirtualCenter, IT organizations can benefit from server consolidation, the ability to allocate resources based on business demand and better disaster recovery, with the opportunity to simplify deployment of critical systems and applications to recovery sites and generate alerts in case of service interruptions.

VMotion, the third VMware technology, enables intelligent workload management so changes can be made dynamically without affecting users. VirtualCenter-managed ESX Server nodes with VMotion let IT executives respond to a variety of data center needs. For example, they can migrate a running virtual machine to a different physical server connected to the same SAN without service interruption or perform zero-downtime maintenance by moving virtual machines around so the underlying hardware and storage can be serviced without disrupting user sessions.

Runner-up: Egenera BladeFrame

The Egenera BladeFrame combines the utility of stateless servers with software that virtualizes processing, storage and networking resources into a "computing fabric." Companies can provision systems and allocate resources to optimize mission-critical applications in real time.

Pillar 4: Networking

Data center networking encompasses a much broader range of technologies than those found in campus-area networks or WANs, such as:

- Server-to-server high-performance interconnect networks. These can be based on InfiniBand or Gigabit Ethernet and provide for high-speed and low-latency interconnect between servers. This type of interconnect is most often used in high-performance computing environments containing clusters of commoditized servers acting as one large supercomputer.
- Server-to-storage networks. This includes Fibre Channel and iSCSI SANs, as well as NAS.
- Data center-to-data center interconnects for replication of data between data centers. To maintain high availability, many companies deploy a secondary data center. The primary and secondary data centers are connected using SONET or DWDM routers, which aggregate different network services on a single multi-gigabit optical link.
- Data center-to-enterprise WAN and LAN networking. This final category includes acceleration products and Wide-Area File System (WAFS) products that provide data center services to the rest of the enterprise WAN and LANs.

Featured product: Juniper DX Application Acceleration (formerly from Redline Networks)

Juniper's DX application acceleration platforms offload core networking and I/O responsibilities from Web and application servers to increase the performance of Web applications without adding server capacity. They also simplify and improve data center architectures by obviating numerous point products.

With Juniper DX application acceleration platforms, time to access business-critical applications is typically cut in half, which can mean a dramatic boost in application usability and acceptance — especially for remote and branch office users.

The DX platforms optimize and compress all outgoing Web data in real time without adding latency.

Content fidelity is maintained, bandwidth use is dramatically reduced and users experience faster page loads regardless of their location or network connection. The DX platforms also increase the capacity of applications by serving as a transaction broker, managing all connections and requests between servers and users. The DX platforms maximize available server and network resources, freeing server CPU for other tasks and yielding up to a ten-fold increase in server/application capacity.

The DX application acceleration platforms also feature integrated security functionality, such as an internal firewall functionality and support for one-way or end-to-end SSL.

Runner-up: Cisco ONS Data-Center Interconnect

The Cisco ONS 15500 Series is designed for carrying mission-critical storage and data applications over a highly available metro optical DWDM network. This is suitable for metro data mirroring between a primary and secondary data center. The ONS 15400 series is suitable for greater distances and data center interconnect to a disaster-recovery site over SONET/SDH.

Beyond the four pillars

These four disciplines are the pillars of the data center. But they're not the only components about which architects should be concerned. Security cuts across all of the core disciplines and affects many aspects of data center design and operations. Security encompasses three primary data-centric goals:

- Confidentiality — Authorized parties can only access ensuring data.
- Integrity — Authorized parties can only modify ensuring data.
- Availability — Ensuring data and applications are not disrupted (intentionally or unintentionally).

Furthermore, all of the above disciplines bring the parallel transformational trends of consolidation, standardization, virtualization and utility.

Clearly, data centers encompass many different technologies. Each company may rank the various disciplines differently, representing different organizational cultures and business goals. The core disciplines and associated trends, however, provide a coherent framework for discussing data centers.

Antonopoulos is senior vice president, founding partner of Nemertes Research, and writes Network World's *New Data Center newsletter. He can be reached at andreas@nemertes.com.*

AFFORDABLE

ALL-INCLUSIVE HOSTING FROM 1&1

**THE BEST VALUE,
THE BEST FEATURES!**

- 1&1 PHOTO GALLERY
- 1&1 WEBSITEBUILDER
- 1&1 DYNAMIC CONTENT CATALOG
- 1&1 WEBSTATISTICS
- 1&1 NEWSLETTER TOOL
- DYNAMICSITECREATOR
- IN2SITE LIVE DIALOGUE
- FREE SOFTWARE WORTH $600
- UP TO 5 FREE DOMAINS .COM, .NET, .ORG ONLY
- ... AND MORE!

1&1 Web Hosting from

$4.99

per month

THE WORLD'S #1 WEB HOST DELIVERS THE FEATURES YOU NEED

1&1 gives you the tools you need to build an impressive website, communicate with your visitors, analyze your site's performance, promote your website in leading search engines, and much more. These tools are included at no additional cost with 1&1 shared hosting plans and are so easy to use that no programming knowledge is needed! And, with plans starting at just $4.99 per month with no setup fee, 1&1 web hosting is truly an ideal solution.

1AND1.COM

1.877.GO1AND1

Member of united internet

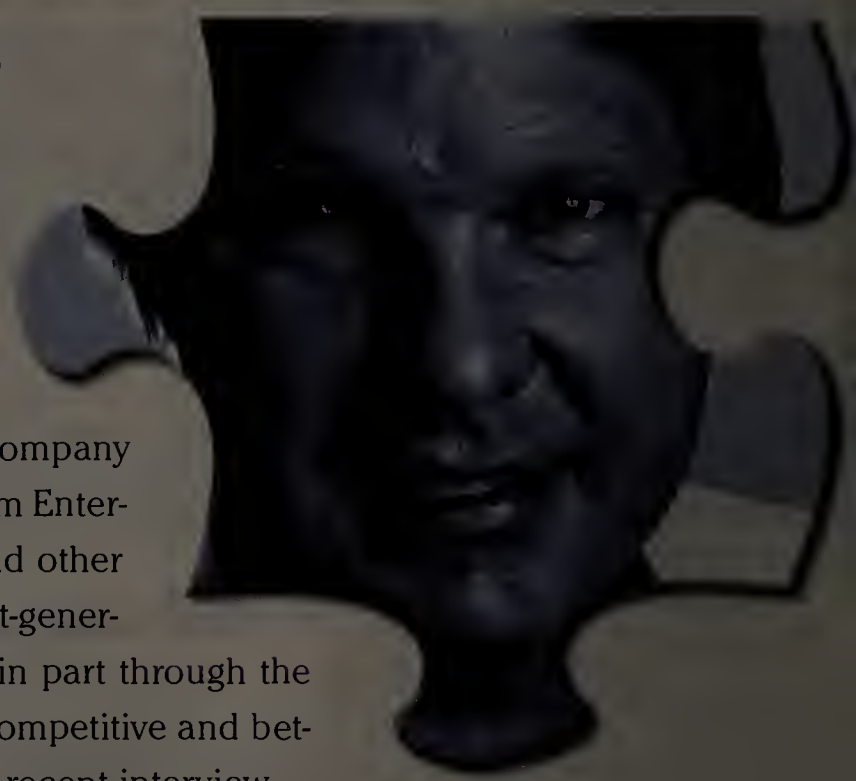
1&1

THE LAST PIECE

SPOTLIGHT ON OUTSOURCING

Compelled to outsource

Starwood CTO Tom Conophy explains his outsourcing strategy.



BY JOANNE CUMMINGS

Starwood Hotels and Resorts, the White Plains, N.Y., hotelier, is in the midst of migrating from a mainframe infrastructure to a next-generation computing environment built on Unix and Linux servers. By August, the company will be using its new infrastructure to support more than 150 Java 2 Platform Enterprise Edition-based Web services for use by its 733 Sheraton, Westin, W and other brand hotel properties worldwide. CTO Tom Conophy expects that its next-generation infrastructure will save Starwood more than $20 million a year — in part through the savvy, judicious use of outsourcing — while making the company more competitive and better at serving customers. Conophy discussed his outsourcing strategy in a recent interview.

For the move to this next-generation environment, you kept control of application development while outsourcing almost everything else. How did you make that decision?

We know the costs of maintaining, engineering and supporting the network hardware. We outsourced [the infrastructure portion] because it's closer to a commodity and it's easier to make sure we have competitive pricing and so on. What we've kept in-house are the reservation and loyalty system applications and the development of those because they are more critical to the business. This is where the unknown areas are in terms of complexity, features and new functions. If you have a mature application base and you're just into maintenance, or if you're in an industry that's not going through change, then outsourcing may well be the most cost-effective way to do it. But where we see the biggest savings from a pure [total cost of ownership] perspective is in the cost of the hardware and the maintenance on that hardware, the software licensing and the managed services side. We built the business case around those three items, and saw that we could save potentially up to $20 million a year in this new platform, relative to what we started with.

So the outsourcing decision is about controlling what's core to your business while offloading what you can get more cost-effectively elsewhere?

Correct. Could you operate your own data center efficiently and in a cost structure that might be better than these large managed services companies? Odds are, yes. But with skills and resource constraints, can you achieve that in a midsize company like we are? If I was Bank of America, maybe I'd run my own data center because I'd get synergy by the size of my operation. But for Starwood, it comes down to whether we want to take on that burden. A well-run organization might be able to get the cost-efficiencies, but it's one of those things where the cost differential just isn't that much, so you might as well outsource.

After whittling down your outsourcer choices to IBM and HP, you picked HP. Why?

We selected HP primarily because of its overall flexibility. We knew that our business was going to change over time, and we wanted to make sure that we were not locked into a restrictive managed services contract where we'd be paying penalties because of system growth.

Also, we wanted to have IBM or HP augment our staff to co-develop and build out this reservation system, and IBM was less flexible about the ownership of intellectual property. Starwood was not going to give up the intellectual property, and HP did not have issues with that.

Did support of new data center technologies, such as virtualization and utility computing, factor into your decision?

It's a factor, but more as a future. We own our hardware, but if we were in some kind of a leased model where we rent CPUs for our high season, it might make sense. But right now, with the cost of hardware being what it is, and the computing power of the current chipsets, it's just not a challenge. If I need to add more capacity for my shopping engine, I throw a few more Linux processors at it.

And your IT staff is OK with the infrastructure outsourcing strategy?

[Yes, because] the internal staff is part of the core team, which we've augmented with HP resources. Now when we finish this big development push, the HP staff can go. But my core staff will remain to face any new challenges, and they won't be burdened by the more mundane [hardware] maintenance-type work.

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@comcast.net.

PHOTO: JOSEPH SQUILLANTE

1&1 DOMAINS – LOW PRICES, NO HIDDEN COSTS

.com
.info
.net
.org

1&1 Domains for only

$5.99

per year

THE ORIGINAL HOME OF LOW-COST DOMAINS!

While other hosts may change their pricing in response to the industry, 1&1 will always offer feature-packed domains at consistently low prices.

NO HIDDEN COSTS, NO GIMMICKS!

1&1's no-nonsense pricing comes without conditions. Register unlimited domains at the same low cost -- and with nothing additional to buy!

1&1 – LEADER IN DOMAIN PRICES

	1&1	Go Daddy	Yahoo!
.com|.net|.org|.info	$5.99	$8.95|$9.95 (.info)	$9.95
ICANN Fee	Included	$0.25	Included
E-mail Account	FREE 1 GB Mailbox Size	FREE 25 MB Mailbox Size	NO Mailbox Included
Total Annual Cost	$5.99	$9.20	$9.95

OVER 5 MILLION DOMAINS AND GROWING!

1&1 offers feature-packed domains at rock bottom prices, so it's no wonder more than 5 million domains have been registered with us worldwide. Choose .com .net .org .info .us .name domains for just $5.99/year | .biz or .ws for $8.99/year | .cc for $19.99/year | .tv for $29.99/year. Or, sign up for any 1&1 shared hosting plan and get up to 5 .com .net or .org domains FREE!

FREE WITH EVERY DOMAIN ACCOUNT:

- ✔ **Private Domain Registration**
  1&1 lets you keep your contact information confidential when you register your domain, so your personal data remains hidden from spammers.
- ✔ **Starter Web Page**
  Choose your template and create a mini website in minutes for your online business card, coming soon page, or parking page.
- ✔ **Search Engine Tools**
  Use Hello! Engines and Ranking Toolbox software to get your site listed on search engines like Yahoo! and Google.
- ✔ **E-mail account with 1 GB space**
  Your included e-mail account lets you send and receive professional-looking e-mail using your domain name as the address.
- ✔ **DNS Management**
- ✔ **200 e-mail aliases**
- ✔ **Domain forwarding**
- ✔ **Domain locking**
- ✔ **Domain masking**
- ✔ **24/7 Support**

UP TO 5 FREE DOMAINS INCLUDED WITH SHARED HOSTING PACKAGES!

Member of united internet

1AND1.COM

1.877.GO1AND1

1&1

NetOp® Remote Control v.8

Nothing comes remotely close

NEW VERSION
Added Remote Management Console, Plus Improved Speed, Security & SMS Integration

Are you adrift in a sea of remote support software options - but with none that meet all your needs? NetOp Remote Control is different. Unlike the bargain products or those buried in other applications - NetOp is designed specifically to meet the remote support and administration needs of professional users like you. NetOp is remarkably flexible, letting you securely access users running virtually any operating system and connect across all standard communication protocols. NetOp's incredible speed let's you quickly fix problems on distant LANs, over the Internet, or even over slow modem connections. But even more importantly, you can do all this in total safety, thanks to NetOp's unparalleled set of security, compliance and auditing features. Give your organization the support - and protection - it deserves. **NetOp Remote Control – Nothing comes remotely close.**

REAL SECURITY

Centralized user rights, authentication and authorization; multiple passwords, notification options and encryption levels; advanced logging, session recording and more. Optional Security, Name and Gateway server modules.

REAL CROSS-PLATFORM

Access any Windows, Linux or Mac OS X system from your Windows, Linux or Solaris desktop, a web browser, Pocket PC handheld, via Terminal Services, dial-up modems or even launch NetOp from your USB Thumb Drive on a temporary PC.

REAL SUPPORT OPTIONS

Award-winning remote control, inventory, remote management, file transfers, VoIP & text chat, scripting; tightly integrates with systems management applications; configure & deploy to remote users; session recording and playback, and much more.

FREE

Download an evaluation copy at **www.RemoteControlSW.com**

NetOp® Remote Control

CrossTec Corporation

Sales and Support: 800.675.0729

MANAGEMENT STRATEGIES

CAREER DEVELOPMENT ■ PROJECT MANAGEMENT ■ BUSINESS JUSTIFICATION

Diversification of the IT department

Businesses strive to incorporate minorities into the workforce.

BY LINDA LEUNG

During the holiday season, a big Christmas tree is displayed at the Prospect Heights, Ill., headquarters of HSBC North America. But the tree isn't the only symbol of celebration featured in the atrium of the financial services company's main office; a Hanukkah candle and a presentation honoring the celebration of Kwanzaa also are on view. This is one of the many ways that HSBC reinforces its culturally diverse workforce, where 17.4% of managers at its 3,400-employee IT department are ethnic minorities.

It appears that HSBC is bucking the trend. According to a study released in June by the Information Technology Association of America, women and most racial minorities are significantly under represented in today's U.S. IT workforce. The percentage of women in the IT workforce has declined by 18.5% since 1996 to 32.4% in 2004. (At HSBC, 27% of IT management are female.)

The report also says that the percentage of African-Americans in the IT workplace has declined to 8.3% in 2004 from 9.1% in 1996, while the percentage of Hispanics in the IT workforce rose from 6.4% in 1996 to 12.9% in 2004.

Despite these figures, HSBC is one of many companies that are actively encouraging a diverse workforce. "Major banks and retailers know that their customer base is diverse and they want their workforce to look like their customers and to be able to relate to them," says Bev Lieberman, president at IT search firm Halbrecht Lieberman Associates.

This is being played out at Scripps Networks, which produces television networks, including HGTV, Food Network and DIY Network. Under an initiative formalized last year, 5% of the bonus of senior managers, including Ron Johnson, Scripps Networks vice president of IT, is tied to their success in hiring and attracting viable job candidates who are ethnic minorities and/or are women.

Of Scripps' 57 IT employees, 25 are women and six are ethnic minorities. Of its 13 IT workers who are managers, five are female and one is an ethnic minority. Johnson says the company wants to improve on those figures as positions open up, but "it has been a challenge because we are located in Knoxville [Tenn.]; more so than if we were located in New York or Los Angeles where there is a naturally broader profile" of diverse potential candidates.

To improve its potential to attract a diverse workforce, Scripps hired Lenore Washington-Graham, an African-American woman, as vice president of strategic resourcing, a unit of human resources spearheading the diversity drive. She flies the Scripps flag at conventions aimed at Hispanics and African-Americans with a master's of business administration (MBA), while HR places job advertisements on minority Web sites.

"There are certain types of IT jobs where it is easier than others to hire minorities, such as in desktop support and help desk, but as you go up the skills ladder, it gets more difficult," Johnson says.

To help widen the candidate pool, Scripps will relocate minority candidates for below-director-level jobs.

Unlike Scripps, HSBC does not relocate new recruits, and so at its 28 remote IT units in less ethnically diverse areas, such as in Buffalo, N.Y., the IT teams reflect their surrounding areas, says Mike Woodward, vice president of HR in HSBC's IT services department. "But we do proactive things like fund the HSBC Chicago chapter of the Black Data Processing Associates, and employees attend local meetings," he says. HSBC hiring managers also are actively involved with the National Black MBA Association, National Society of Hispanic MBAs and Inroads, a non-profit that trains and develops minority youths.

Hiring more women in the IT team is a top priority for Linda Reed, vice president and CIO at Atlantic Health System, which operates three hospitals in New Jersey. During her 19 years in healthcare, Reed, a registered nurse, moved up the ranks from the hospital bedside to the CIO office.

Since joining Atlantic as CIO a year ago, Reed has been encouraging clinicians — most of whom are women — to transfer to IT as business analysts. Of Atlantic's 140-employee IT department, 30% are business analysts, the majority of whom are women. This compares to just a handful of women in the department when Reed joined, she says. But there is still a dearth of women candidates for the more technical IT jobs, such as networking and telecom, Reed says.

"Healthcare is traditionally a female-dominated profession, because many are nurses," Reed says. "If you look at my IT department, we do have more women because they came out of the hospitals. The most important thing is to be able to tie together business and IT."

Reed acknowledges that for some clinicians, moving into IT was scary. "We encouraged them to look at the growth opportunity. It's taking nursing and enhancing it in different ways. You need clinical people to understand how [patient care] works. It's the next-generation of clinical services — healthcare information will become electronic," she says. ■

Linda Reed of Atlantic Health System encourages clinicians to move into IT.

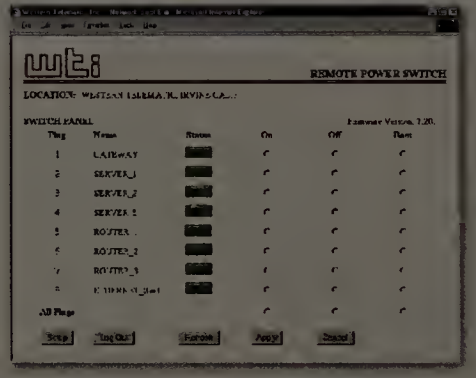
Network Power Switches

Control Power on Any AC Powered Device ... Via Web Browser, Telnet, Modem or Local Terminal

Servers, routers, and other electronic equipment occasionally "lock-up", often requiring a service call to a remote site just to flip the power switch to perform a simple reboot. With WTI's Remote Power Switches, you can perform reboot and On/Off control from anywhere!

- Web Browser Access for Easy Setup and Operation
- Encrypted Password Security
- Dual 15 Amp Power Circuits Total 30 Amps Maximum Load
- 115 VAC and 230 VAC Models
- Up to Sixteen (16) Individual Outlets
- RS232 Modem / Console Port
- Network Security Features
- Power-Up Sequencing

Web Browser Interface



IPS-800

IPS-1600

Yes, We are Customer Friendly!

- ✓ Two Year Warranty
- ✓ We Stock for Same Day Shipment
- ✓ 30 Day Return Policy
- ✓ **Call or Email for an Online Demo**

Dual Power Inputs

Model NBB-1600

wti

www.wti.com

western telematic incorporated

5 Sterling • Irvine • California • 92618-2517 • (800) 854-7226

The Truth about Secure-Out-Of-Band

Terminal server vendors, who proclaim that they have Secure Out Of Band products, rely on RADIUS, TACACS+ and other in-band protocols to provide security. By inference, they imply they secure out of hand access when, in fact, they offer only network security, which conflicts with out of hand access.

A true Secure Out of Band Management solution should provide strong security without reliance upon network-based protocols.

CDI offers:

- Hardware encryption over dial-up and network connections
- RSA certified SecurID authentication without a network.
- Patented central management of all remote devices
- Full NIST, FIPS 140-2 certifications
- Remote Power control
- Homologous world-wide approved internal modems

CDI has been building encryption equipment for over fifteen years. Our customers and partners include major financial institutions, government agencies, major telcos, utilities, and the United States military.

Communication Devices Inc.

www.outofbandmanagement.com

MONITOR SERVER ROOM THREATS!

ENVIROMUX-MINI

- Monitor threats such as temperature, humidity and water leaks
- Be notified via email, SNMP traps, web-page alerts and a visual indicator
- Low cost and compact size system

Receive a FREE 10 ft. Temperature Sensor when you purchase an *ENVIROMUX-MINI* by 12/31/05.

Call 800-742-8324 and mention reference code ENV-NW.

NTI® NETWORK TECHNOLOGIES INCORPORATED

Visit: www.nti1.com/nw.html
Email: sales@ntigo.com
Call: 800-742-8324

Sales Offices

Carol Lasker, Executive Vice President, Seles
Jene Weissman, Sales Operations Manager
Internet: clesker, jweissman@nww.com
(508) 460-3333/FAX: (508) 460-1237

New York/New Jersey
Tom Davis, Associate Publisher, Eastern Region
Elisa Delle Rocco, Regionel Account Director
Ageta Joseph, Sr. Account Coordinator
Internet: tdavis, elisas, ajoseph@nww.com
(201) 634-2300/FAX: (201) 634-9286

Northeast
Elisa Della Rocco, Regional Account Director
Internet: elisas@nww.com
(508) 460-3333/FAX: (508) 460-1237

Mid-Atlantic
Jacqui DiBianca, Regional Account Director
Renee Wise, Account Coordinator
Internet: jdibian, rwise@nww.com
(610) 971-1530/FAX: (610) 975-0837

Midwest/Central
Tom Davis, Associate Publisher, Eestern Region
Ageta Joseph, Sr. Account Coordinator
Internet: tdavis, ajoseph@nww.com
(201) 634-2314/FAX: (201) 712-9786

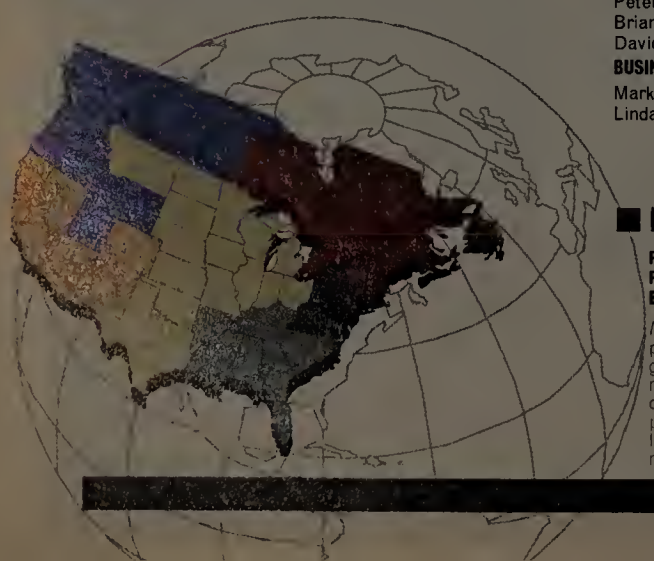
Southeast
Don Seay, Regional Account Director
Renee Wise, Account Coordinator
Internet: dseay, rwise@nww.com
(404) 504-6225/FAX: (404) 504-6212

Northern California/Northwest
Sandra Kupiec, Associete Publisher, Western Region
Karen Wilde, Regional Account Director
Courtney Cochrane, Regional Account Director
Vanessa Tormey, Regional Account Manager
Jennifer Hallett, Account Coordinator
Cyril Talusen, Account Coordinator
Internet: skupiec, kwilde, ccochrane, vtormey, ctalusan, jhallett@nww.com
(510) 768-2800/FAX: (510) 768-2801

Southwest/Rockies
Becky Bogart, Regional Account Director
Internet: bbogart@nww.com
(949) 250-3006/FAX: (949) 833-2857

Online/Integrated Solutions
Kevin Normandeau, Exec. Vice President/General Mgr., Online
Susan Cardoza, Associate Publisher, Online
Scott Buckler, Online Account Director
Stephanie Gutierrez, Online Account Maneger
Debbie Lovell, Online Account Manager
Kate Zinn, Online Account Director
Denise Landry, Account Coordinator
Lisa Thompson, Account Coordinator
Internet: knormandeau, scardoze, sbuckler, sgutierrez, dlovell, kzinn, dlandry, lthompson@nww.com
(508) 460-3333/FAX: (508) 861-0467

MARKETPLACE/EMERGING MARKETS
Donna Pomponi, Director of Emerging Markets
Enku Gubaie, Manager of Marketplace/Emerging Markets
Caitlin Horgan, Manager of Marketplace/Emerging Markets
Chris Gibney, Sales Operations Coordinator
Internet: dpomponi, egubaie, chorgan, cgibney@nww.com
(508) 460-3333/FAX: (508) 460-1192



Network World, Inc.

118 Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

TO SEND E-MAIL TO NWW STAFF
firstname_lastname@nww.com

Evilee Ebb, CEO/Publisher
John Gallant, President/Editorial Director
W. Michael Draper, Chief Operating Officer
Eleni Brisbois, Administrative Planning Manager

FINANCE
Mary Fanning, Vice President Finance
Paul Mercer, Finance Manager
Betty Amaro-White, Event Finance Manager

HUMAN RESOURCES
Patricia Duarte, Director of Human Resources
Eric Cormier, Sr. Human Resources Generalist

CUSTOM MEDIA
Michael Siggins, Associate Publisher/Custom Media

MARKETING
TerryAnn Fitzgerald, Sr. Director of Customer Experience
Jeanne Seltzer, Marketing Communications Manager
Barbara Sullivan, Senior Research Analyst
Judy Schultz, Marketing Design Manager
Cindy Panzera, Marketing Designer
Deborah Vozikis, Design Manager Online

PRODUCTION SERVICES
Greg Morgan, Senior Director, Production Services
Karen Wallace, Senior Director, Advertising Operations
Mike Guerin, Manager of Production Technologies
Jami Thompson, Sr. Production Coordinator
Veronica Trotto, Online Operations Coordinator
Jane Wilbur, Online Ad Traffic Coordinator
Maro Eremyan, Advertising Coordinator
Christina Pankievich, Advertising Coordinator

CIRCULATION
Richard Priante, Senior Director of Circulation
Bobbie Cruse, Subscriptions Manager
Mary McIntire, Sr. Manager, Audience Development

RESEARCH
Ann MacKay, Research Director

DISTRIBUTION
Bob Wescott, Distribution Manager/(508) 879-0700

IDG LIST RENTAL SERVICES
Amy Bonner, Account Executive
P.O. Box 9151, Framingham, MA 01701-9151
Toll free: (800) 434-5478 ext. 6026/Direct: (508) 370-0826
Fax: (508) 370-0020

SEMINARS, EVENTS AND IDG EXECUTIVE FORUMS
Neal Silverman, Executive V. P., Events & Executive Forums
Mike Garity, Sr. Director, Marketing & Bus. Development
Dale Fisher, Senior Event Planner
Jacqueline DiPerna, Event Coordinator
Karen Bornstein, Sales Operations Specialist
Danielle Bourke, Event Operations Coordinator
Andrea D'Amato, Sr. National Sales Director
Kristin Ballou-Cianci, Regional Account Director
Jennifer Sand, Regional Account Manager
Cedric Fellows, Regional Account Manager
Grace Moy, Exhibit Sales Manager
Debra Becker, Dir., Marketing & Audience Development
Sara Nieburg, Senior Marketing Manager
Buster Paris, Marketing Specialist

ONLINE SERVICES
Kevin Normandeau, Exec. Vice President/General Mgr., Online
Dan Gallagher, Sr. Director, Audience Development
Norm Olean, Director of Business Development, Online
Adam Gaffin, Executive Editor, Online
Melissa Shaw, Managing Editor, Online
Jason Meserve, Multimedia Editor
Sheryl Hodge, Sr. Online Copy Chief
Jennifer Moberg, Online Marketing Program Manager

CLIENT SERVICES
Sharon Stearns, Director of Client Services
Frank Coelho, Client Services Manager
Leigh Gagin, Client Services Manager
Julie Steiner, Client Services Manager

INFORMATION SYSTEMS
W. Michael Draper, Chief Operating Officer
Tom Kroon, Director of Systems Development
Anne Nickinello, Senior Systems Analyst
Puneet Narang, Manager of Database Technologies
William Zhang, Senior Software Engineer
Manav Seghal, Senior Software Engineer
Rocco Bortone, Director of Network IT
Peter Hebenstreit, Senior Network/Telecom Engineer
Brian Wood, Senior Systems Support Specialist
David Mahoney, Systems Support Specialist

BUSINESS SERVICES
Mark Anderson, Business Services Supervisor
Linda Cavanagh, Business Services Administrator

IDG

Patrick J. McGovern, Chairman of the Board
Pat Kenealy, CEO
Bob Carrigan, President, IDG Communications

Network World is a publication of IDG, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. IDG publishes over 300 computer publications in 85 countries. One hundred million people read one or more IDG publications each month. *Network World* contributes to the IDG News Service, offering the latest on domestic and international computer news.

NETWORKWORLD

Editorial Index

Advertiser Index

Network World – www.networkworld.com

ADIC	Microsoft Corp
Adtran Inc	Mimosa Systems
Akamai Technologies	NCS Technology
American Power Conversion	Neon Software Inc
Arbor Networks	NetQoS, Inc.
Arrow Electronics	Network Associates
Avaya - NJ	Network Physics
CDW	Nokia-AK, Inc.
Ciena Corp	Novell
Cisco Systems, Inc.	Oracle Corp
Client Name	Packeteer Inc.
Colubris Networks, Inc	Permeo
Coradiant	Pulver.com
Cyclades Corp	Quest Software
Dell Computer Corp	RoboticsTrends
EMC Corp	SafeNet
Emulex Corp	SAS Institute
FaceTime Communications	Server Technology Inc
Fluke Networks	ShoreTel
Hitachi Data Systems	Siemens Business Comm.
HP - CA	SPI Dynamics
IBM	Spirent Communications
IDG World Expo/LinuxWorld	SSH Communications
Iomega	Systimax Solutions
IronPort Systems	Tacit Networks
IXIA	Tripp Lite
KaplanIT	Websense Inc
Lancope	WiredRed Software
LANDesk	Zultys
LightPointe Communications Inc.	

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

VORTEXSF05

OCTOBER 24–26 | THE PALACE HOTEL, SAN FRANCISCO

SPONSOR COMPANY PROFILES

*Thank you for supporting **VORTEXSF05** and making the event a success!*

PLATINUM PLUS

CISCO SYSTEMS

Cisco Systems, Inc.

Cisco Systems, Inc. is the worldwide leader in networking for the Internet. Cisco hardware, software, and service offerings are used to create Internet solutions so that individuals, companies, and countries have seamless access to information regardless of differences in time and place.

www.cisco.com

Lucent Technologies
Bell Labs Innovations

verizon wireless

Lucent Technologies/Verizon Wireless

Verizon Wireless owns and operates the nation's most reliable wireless network, serving 47.4 million voice and data customers. Its BroadbandAccess service, powered by Lucent Technologies, provides access at typical speeds of 400-700 Kbps and is available in 60+ major metropolitan markets.

www.lucent.com
www.verizonwireless.com

EMC²
where information lives®

EMC Corporation

EMC Corporation is the world leader in products, services, and solutions for information storage and management. We are the information storage standard for every major computing platform and are caretakers for more than two-thirds of the world's most essential information. We help enterprises of all sizes manage information as it grows and changes value through information lifecycle management. Our 23,000 people worldwide are committed to our customers' success — and to the life of information.

www.emc.com

NORTEL

Nortel

Nortel is a trusted leader in empowering enterprises to profit from the convergence of voice, data, video, and applications on wired and wireless networks. Customers can deploy converged networks and applications tapping into an innovative solution-set encompassing IP telephony, Ethernet switching, WLAN and mobility, security, multimedia, network management, and customer contact and self-service technologies.

www.nortel.com

Crypto
continued from page 1

review — will eventually gain must-have status.

The IETF isn't in the job of vetting crypto algorithms, as that's regarded as a job for government agencies throughout the world, typically with a lot of input from outside experts. But the IETF is careful to include only sound crypto into its protocols.

Like practically everything in the IETF standards process, getting new crypto into IETF protocols such as Secure Multi-purpose Internet Mail Extensions (S/MIME), IPSec and Transport Layer Security (TLS) can take years. The Russians and the South Koreans have been among the most persevering in seeking to get their national ciphers through the process.

In a sign of success, several IETF RFCs recently were issued for using South Korea's 128-bit symmetric key SEED and the Russian 256-bit GOST, which is extensible to 768 bits. (The longer the key size, the presumably harder it is to break encrypted data, though other factors define an algorithm's intrinsic strength.)

"In this conscious effort to register a cipher suite, they're being good Internet citizens," says Russ Housley, the IETF security area director who heads his own firm, Vigil Security.

SEED, developed by the Korean Information Security Agency (KISA), is defined for use in TLS and S/MIME, with IPSec support on the way. Four of KISA's security experts, Hyangjin Lee, Jaeho Yoon, Seoklae Lee and Jaeil Lee, wrote the technical drafts, detailing use of SEED and testifying that it is "robust against known attacks." It is said to be widely used by financial services companies, including the Bank of Korea, for VPN and digital rights management. SEED is supported in products from an assortment of global companies, including Chrysalis-ITS, nCipher, Rainbow Technologies and Schlumberger.

The Russians also are making a splash at the IETF, with security vendors Crypto-Pro, Factor-TC, Infotecs and Fguestc lobbying for the Russian block cipher GOST 28147-89 (GOST is short for the Russian word for government). Because of their efforts, GOST recently became an option for use in IETF protocols.

"GOST is the Russian national standard, but it turns out GOST left something unsaid about what was needed for interoperability, so the Russian crypto vendors got together to make sure the standard could support interoperable products," Housley says.

The vendors worked with Russian security agencies to square away some details, because in Russia vendors can't sell an encryption product until the government inspects it. GOST, which is going into the Russian Federal Treasury's massive public-key infrastructure project for document encryption and signing, doesn't generate much excitement among crypto professionals.

"It's an old Soviet-era algorithm that got declassified," says Bert Kaliski, vice president of research and chief scientist at RSA Security, whose RSA algorithm is famous for helping to establish public-key technology in the 1970s. "Sometimes weaknesses have been discerned in it."

But it's not known to be broken, Kaliski says.

"There are debates about the validity of GOST," says Jon Callas, CTO at PGP, the company that makes e-mail and file encryption software. "But there's a need for it inside Russia, because if you're in banking or government, you have to use GOST."

Callas, who heads the IETF group that developed the OpenPGP standard, is holding discussions with colleagues on whether to implement GOST in OpenPGP. He notes that there's "always tension between more ciphers and less ciphers. If there are more ciphers, then implementers have more work."

In addition, if a crypto algorithm chosen for selection in an IETF standard were broken, it would generate a collective sense of disappointment.

Once it was known that 56-bit DES, defined as the U.S. standard in the 1970s, was breakable in the 1980s, the shift was made to Triple-DES for longer key length. But Triple-DES encryption is often viewed as slow, and the search was on for a DES replacement.

AES emerged as the winning algorithm in the U.S. — the fact that Americans didn't craft it has boosted its appeal internationally, many say — but a number of other worthy contenders have come and gone.

A Canadian algorithm called CAST (named after its inventors Carlisle Adams and Stafford Taveres) is viewed as a classic, even if not widely used today. "It's blindingly fast," Callas says.

One advantage in an IETF registration for a crypto algorithm is that it not only provides an endorsement, but defines technical depth that helps support interoperability, Kaliski says. That's important for anyone working on business projects in countries around the world, he says.■

Global crypto

Cryptographic technologies from around the world have started working their way into the IETF standards process. A sampling:

South Korean crypto contribution:

February

- RFC 4009 (The SEED encryption algorithm)
- RFC 4010 (Use of SEED encryption algorithm in cryptographic message syntax)

August

- RFC 4162 (The Addition of the SEED Cipher Protocol Suites to Transport Layer Security)

Russian crypto contribution:

September

- Internet draft (Using the GOST 28147-89, GOST R. 34.11-94, GOST R 34.10-94 and GOST R 34.10-2001 algorithms with the cryptographic message system)

Note: The addition of new crypto to IETF protocols is described in the IETF working group document, "Summary of S/MIME Mail Security work on updating cryptographic algorithms."

The link between crypto and politics

IT security company Cybertrust knows a thing or two about cryptographic algorithms and world politics. It is supporting the Russian Treasury's public-key infrastructure project, which is expected to result in about 1 million users of digital certificates based on Russian crypto standards.

Pieter Kasselman, senior research engineer at Cybertrust, says governments around the world historically developed their own cryptographic algorithms because they weren't "always comfortable with cryptographic algorithms that are developed outside their influence sphere." He notes crypto can become a factor in trade talks or negotiating strategy with other nations.

That's what has happened with China, where the Chinese WAPI standard is required for wireless LANs (WLAN), which has loomed as a huge trade barrier in the eyes of the U.S.

The main reason for the friction over WAPI is that the Chinese included a secret unpublished crypto algorithm in it that is intended to be licensed only to authorized Chinese firms. That was viewed as an unfair trade practice by the U.S. The dispute is ongoing, sources say.

Several crypto experts who spoke off the record say they suspect the secret algorithm probably has a back door so the Chinese government could easily decrypt data. If so, the Chinese aren't the first to propose that on a national scale.

Such a back door was proposed for national use in the U.S. in the 1990s by the Clinton administration. Encouraged by the National Security Agency, the administration took the position that strong, unbreakable encryption in the commercial sector was a threat to law enforcement.

The National Institutes of Standards and Technology came up with the Escrowed Encryption Standard. It included the secret Skipjack algorithm.

Skipjack was eventually published, and though it's largely forgotten outside government circles, it did make its way into the IETF as a recognized cipher.

— Ellen Messmer

■ **Network World**, 118 Turnpike Road, Southborough, MA 01772-9108, (508) 460-3333.

Periodicals postage paid at Southborough, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #40063800. Network World (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 118 Turnpike Road, Southborough, MA 01772-9108.

Network World is distributed free of charge in the U.S. to qualified management or professionals.

To apply for a free subscription, go to www.subscribenw.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-490-6444.

Nonqualified subscribers: $5.00 a copy; U.S. - $129 a year; Canada - $160.50 (including 7% GST, GST#126659952); Central & South America - $150 a year (surface mail); all other countries - $300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106.

POSTMASTER: Send Change of Address to **Network World**, P.O. Box 3090, Northbrook, IL 60065. Canadian Postmaster: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A7C9.

USPS735-730

VORTEXSF05

OCTOBER 24–26 | THE PALACE HOTEL, SAN FRANCISCO

SPONSOR COMPANY PROFILES

*Thank you for supporting **VORTEXSF05** and making the event a success!*

PLATINUM

A&R | PARTNERS

A & R Partners

A&R Partners, Inc. is an experienced high-tech public relations firm providing communications services such as strategic message development and press, analyst, and investor relations. A&R's clients include companies in the enterprise software, infrastructure and security, consumer technology, and mobile and wireless markets.

www.arpartners.com

Invest Northern Ireland

Invest Northern Ireland

Invest Northern Ireland is a government agency that assists with the business development efforts of companies interested in expanding and building partnerships overseas. Investors such as Microsoft, Oracle, SAP and Citigroup have all recognized that setting up operations in Northern Ireland gives them access to a desirable workforce, a robust infrastructure, top universities and financial support.

www.investni.com/invest

QUALCOMM®

QUALCOMM Incorporated

QUALCOMM Incorporated is a global leader in developing and delivering innovative, end-to-end wireless products and solutions based on CDMA and other advanced technologies. Its customer base includes the world's premier handset and infrastructure manufacturers, and its partners include leading wireless network operators. QUALCOMM's products and services enable these and other key participants in the wireless value chain to enhance the wireless experience of those most critical to the success of 3G — consumers, businesses and government.

www.qualcomm.com

GOLD

AT&T

INTEGRIEN

PORTER NOVELL

BARRACUDA NETWORKS

Many Minds. Singular Results.

BACKSPIN Mark Gibbs

How to survive in IT

So you have decided on a career in IT instead of, say, being a dancer on Broadway or becoming a fugu chef in Japan. Given that you consider IT more interesting than appearing in 50,000 performances of "Oliver" and less risky than serving up potentially lethal sushi, what should you know about not just surviving but prospering in the fast paced and exciting world of information technology?

First, you need to know that you will never be indispensable. Even if you rise to the level of CIO or CTO or whatever the top IT wonk is called in your company, there are limits to how critical your services are to the organization.

So before you sneer at the CEO when he asks where the "any" key is, just remember you can be replaced and, given the current economic climate, this can be done without going to a lot of trouble or expense.

Second, you need to know that you can't avoid politics. And before you ask — nope, you can't just ignore corporate politics because they are central to how groups of people establish the parameters of working together.

While there is a theory that nice can win out in office power struggles (see the posting "Penelope Trunk: Office politics are not optional" on Network World's IT Borderlands Weblog (www.networkworld.com, DocFinder: 9353), the truth is that nice in and of itself doesn't work alone. It helps but it isn't key.

<digression.>Contrary to the Borderlands Weblog, I'd suggest if you're not nice then trying to act otherwise is not a long-term strategy or even a viable short-term tactic. The idea that you can disguise the "inner you" and change how you behave is not, as the Borderlands column suggests, the work of a few minutes, hours, days, weeks or even months — it takes years. Try to act some way that isn't yourself and you will be found out.</digression>

First of all, you can't win at office politics. No one can except occasionally in the short term. The goal is to survive office politics and here's how you do it: First, don't lie. Ever. Not even white lies. Second, don't gossip. By all means be amused by gossip but don't get involved and don't spread it. Third, don't try to be manipulative or underhanded in any way. That rarely works and when it doesn't you will make enemies.

> You need to know you will never be indispensable.

My final advice in planning an IT career is you should have a good idea of the limits of your ambition. Want to work 24/7/365, live out of a suitcase and be the "go-to" guy? In IT there is no end of jobs like that, but if you have any plans for, say, a family life, then this is unlikely to be the job for you. Even if you are single this is a level of pressure few can tolerate in the long term.

On the other hand, what if you just want a 9-to-5 job and be able to go home and not think about IT until the next morning? No problem, but understand you are unlikely to rise very high in the hierarchy even if you have outstanding skills because you won't be an insider, you won't be part of the "team."

(Why is everything by a "team" these days? My bank corresponds with me and signs themselves "account team". Software companies have beta teams and resellers have sales teams. Will it never end?)

The strategic approach is figuring out how much you want to give yourself over to your job and whether the compensation is worth it, because one thing is sure: If the economic ordure hits the whirling blades, you will find that my first point about not being indispensable will be clearly demonstrated and suddenly finding that your commitment and raw enthusiasm didn't really matter will be a hard blow.

IT is a wonderful career that can be stimulating, challenging, absorbing and rewarding. You just need to have a plan and understand the realities.

Your reality can be sent to backspin@gibbs.com or aired on Gibbsblog at www.networkworld.com/ weblogs/gibbsblog/.

NETBUZZ News, insights, opinions and oddities

Paul McNamara

Google's making everyone mad

Another week brings yet another bunch of folks who are mad as all get-out at Google. The company that once could do no wrong now routinely finds itself being compared with Microsoft — and not in a good way.

Last week it was book publishers and bloggers whacking Google upside the head.

Both have good cause, too.

Books first. As you may have read, the Association of American Publishers (AAP) and five of its most prominent members — McGraw-Hill, Pearson Education, Penguin Group, Simon & Schuster and John Wiley & Sons — have filed a lawsuit to stop Google from proceeding with the Google Print Library Project, the search giant's attempt to create digital copies and an index of millions of books, including those still under copyright. The publishers — much like an author's group that filed a similar suit earlier — contends that what Google is doing constitutes a blatant copyright infringement.

Google wants us to believe that not only is the law on its side — "fair use" and all — but that it is doing the work of angels in undertaking what is at its core a commercial project.

"Creating an easy-to-use index of books is fair use under copyright law and supports the purpose of copyright: to increase the awareness and sales of books, directly benefiting copyright holders," said David Drummond, Google's general counsel, in a statement. "This short-sighted attempt to block Google Print works counter to the interests of not just the world's readers, but also the world's authors and publishers."

Funny how so many of the world's authors and publishers don't see how Google's doing them a great favor.

Google also wants us to believe that it is simply impractical to obtain permission from authors and publishers before copying their copyrighted works and including them in the index.

Funny how Google competitor Yahoo is in the midst of a similar book-indexing project and is doing so with the express permission of copyright holders. And let's not forget that Google has enough cash on hand to do pretty much anything it considers important.

Google has agreed to let publishers and authors decline to have their work included in Google Print, in a clear but futile attempt to soften opposition. What's not clear is why the company would bother to offer such an opt-out option if its lawyers are so convinced that the fair-use gambit will hold up in court.

This isn't about fair use. As is the case in virtually every serious legal dispute, this one is all about the money. While Google Print may one day prove to be as valuable a public resource as the local library, there's no getting around the fact that it is first and foremost a commercial enterprise.

"While authors and publishers know how useful Google's search engine can be and think the Print Library could be an excellent resource, the bottom line is that under its current plan Google is seeking to make millions of dollars by freeloading on the talent and property of authors and publishers," says AAP President and former Colorado Congresswoman Patricia Schroeder.

Meanwhile, bloggers also are beginning to wonder if having Google on hand to help is any better than having a government agent knocking at the door.

Google's free Blogger service has been so wildly successful that virtually anyone can join in the fun — including hordes of spammers, or sploggers as they're known in the blogosphere. While phony blogs (splogs) have been a nuisance for some time, the nuisance erupted into a menace last week with the use of automated blog-generating software resulting in thousands of splogs that rendered blog search results practically useless.

The firestorm of criticism directed at Google included calls for pulling the plug on Blogger. You can get a sense of what's happening on the front lines of this battle by visiting www.networkworld.com, DocFinder: 9354. Google's take can be read at DocFinder: 9355.

By week's end Google had apparently made a bit of progress in stemming the flow, but critics were not exactly raising glasses over the results.

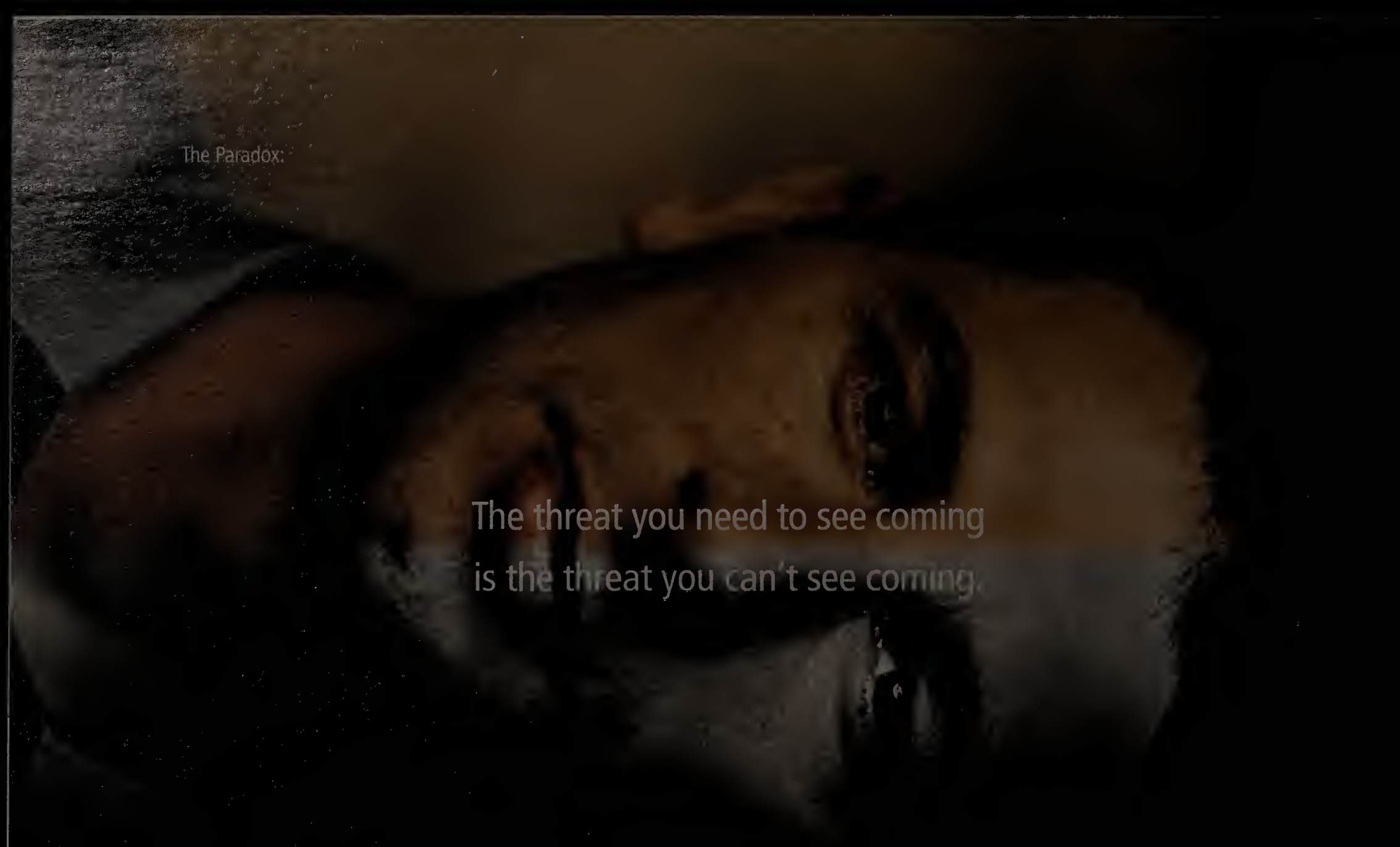
Raise issues with any of this by directing an e-mail to buzz@nww.com.

Today, James configured six critical servers in six different states – all before lunchtime in D.C.

With Avocent data center management solutions, the world can finally revolve around you. Avocent DSView® 3 management software gives you a secure, centralized point of control – whether your server rooms are across the hall or across the nation. With more than 20 years' experience, Avocent offers multi-platform, multi-device access that fits seamlessly into your multi-tasking lifestyle. You can manage critical servers, networks and more, all from a single interface. And you can do it from any location. Avocent helps you save time, improve efficiencies – and brag a little too.

For one-stop information on improving data center practices, visit

http://infrastructure.techweb.com



The Answer: Proven security.

Vulnerability Management
Intrusion Prevention
E-Mail & Web Security
Anti-Spam
Anti-Spyware
Anti-Virus

Zero-day threats. Modified threats. Encrypted attacks. With McAfee®, you're protected. Our comprehensive security solutions with integrated intrusion prevention technology proactively protect your systems and networks. And our proven approach blocked or contained 100% of the top attacks in 2004. Backed by more than 15 years of experience protecting and supporting our customers, McAfee's software, hardware, and services are a proven way to secure your business. Learn more at www.mcafee.com/enterprise

Proven Security™